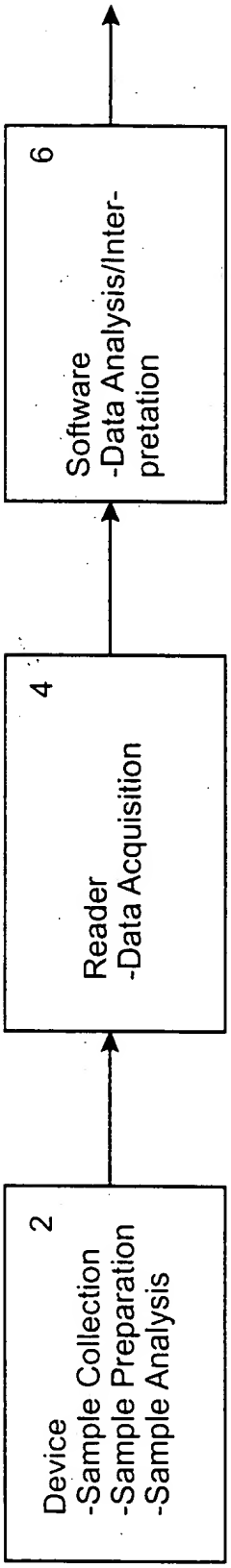

Device
-Sample Collection
-Sample Preparation
-Sample Analysis
2
Reader
-Data Acquisition
4
Software
-Data Analysis/Inter-
pretation
6

FIG. 1

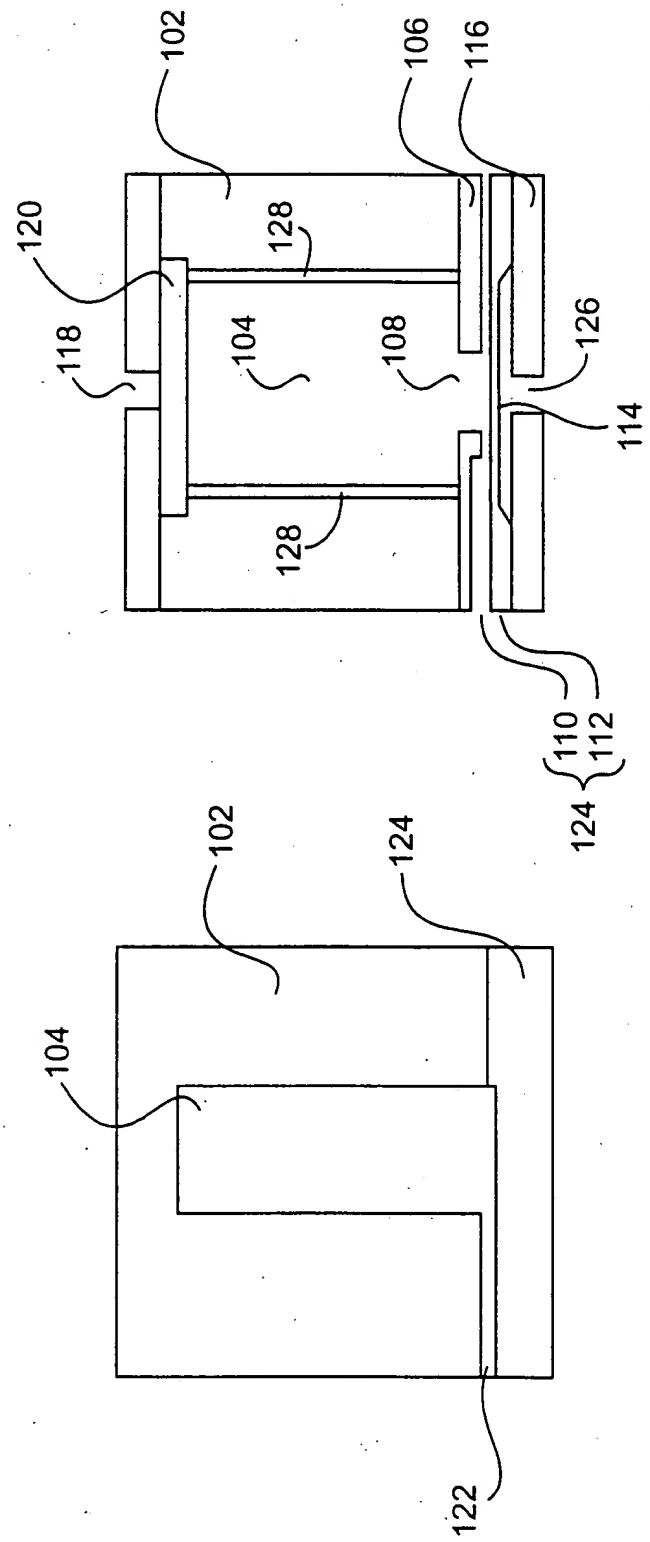


FIG. 2b

FIG. 2a

FIG. 2a & 2b

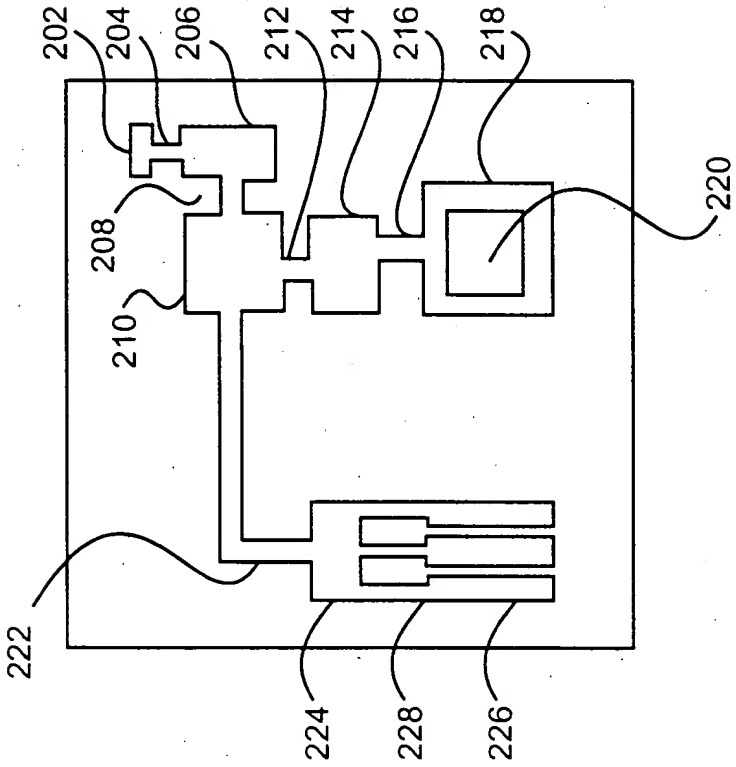


FIG. 3

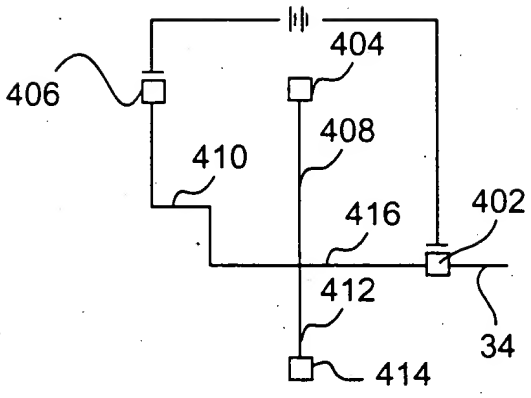


FIG. 4a

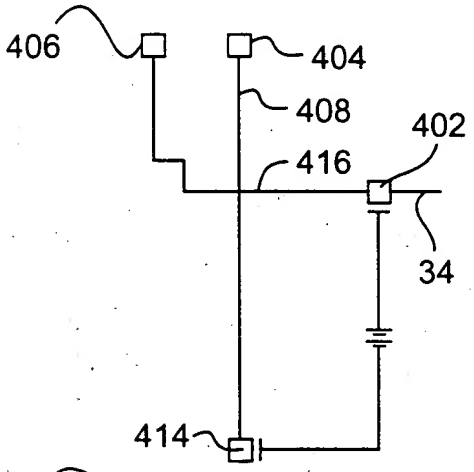


FIG. 4b

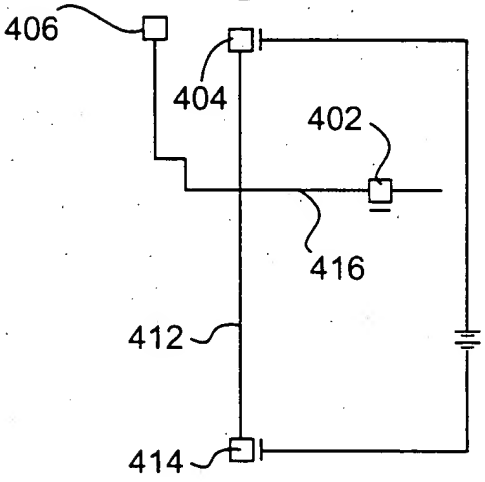


FIG. 4c

FIG. 4a-4c

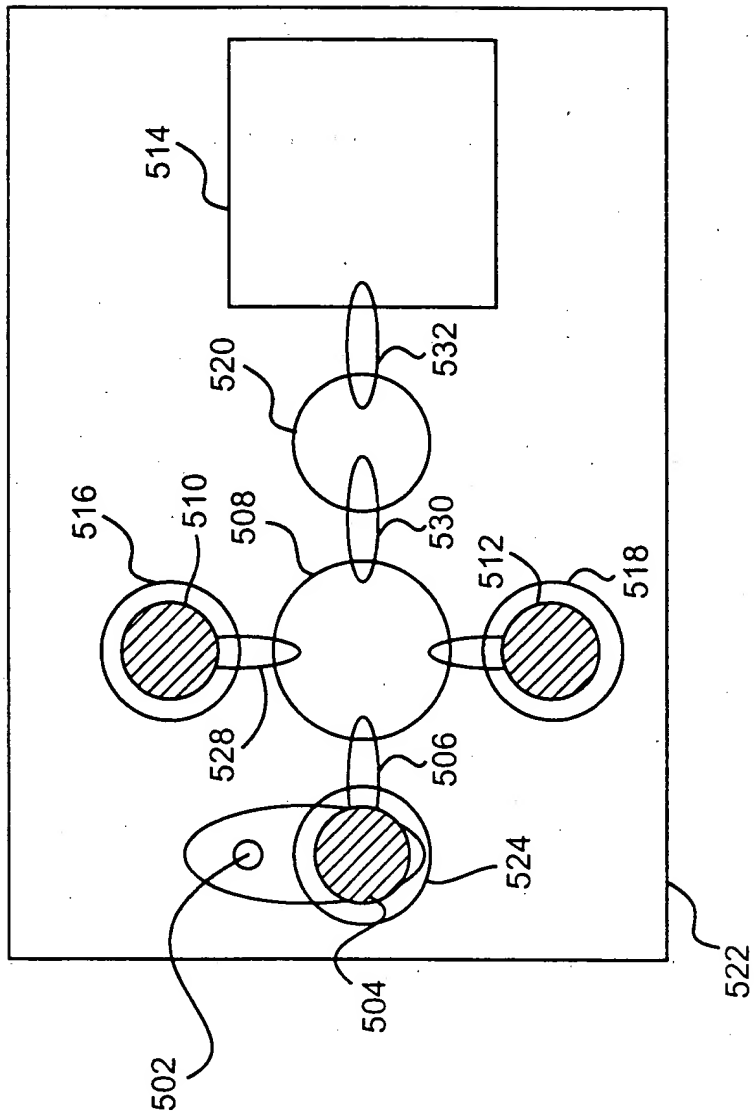


FIG. 5a

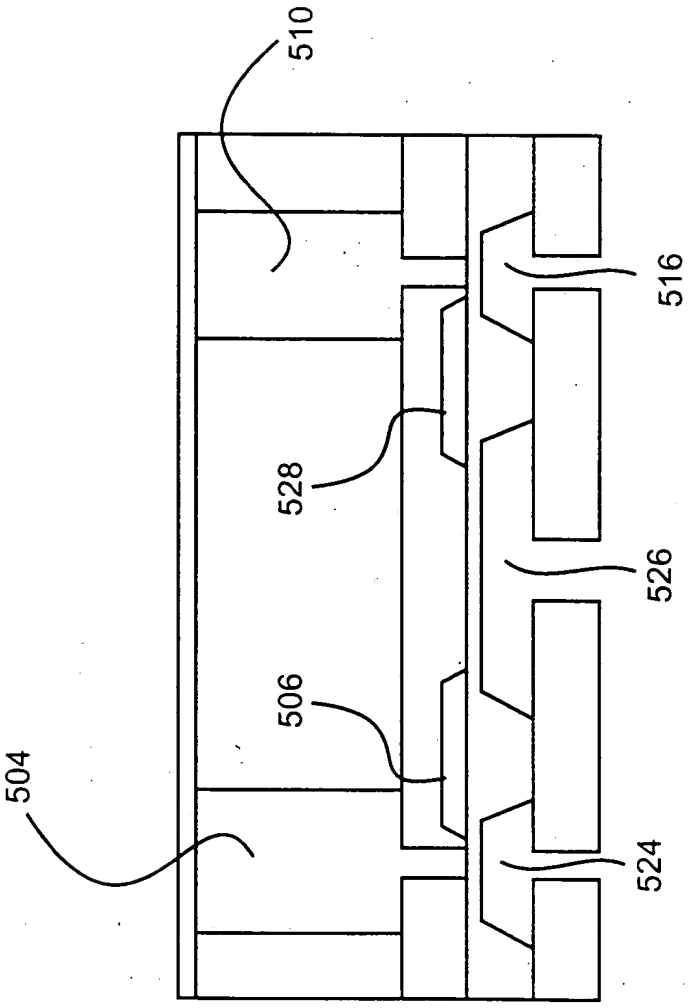


FIG. 5b

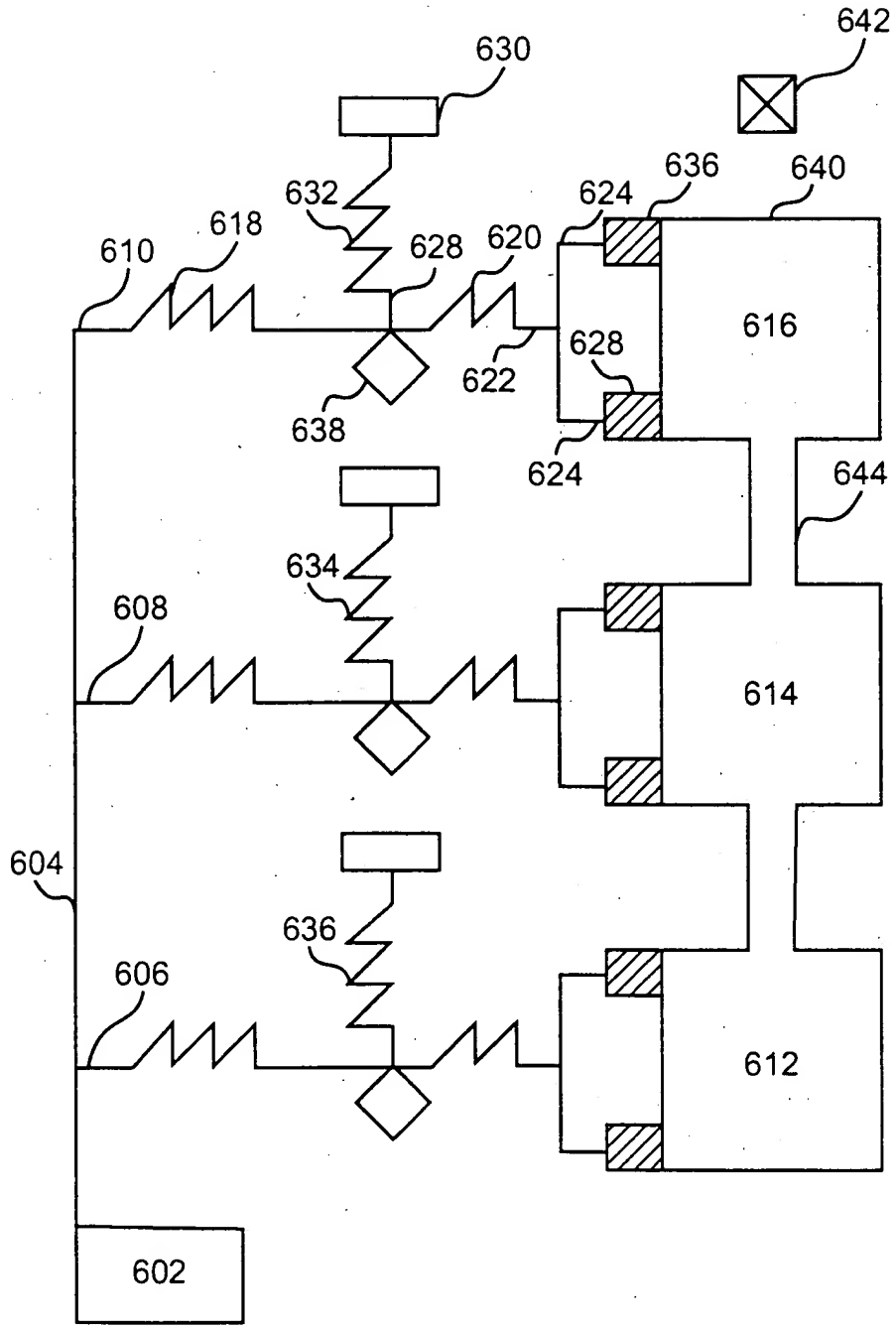

642
630
636
640
632
624
618
610
628
620
616
628
622
638
624
644
634
608
614
604
636
606
612
602

FIG. 6a

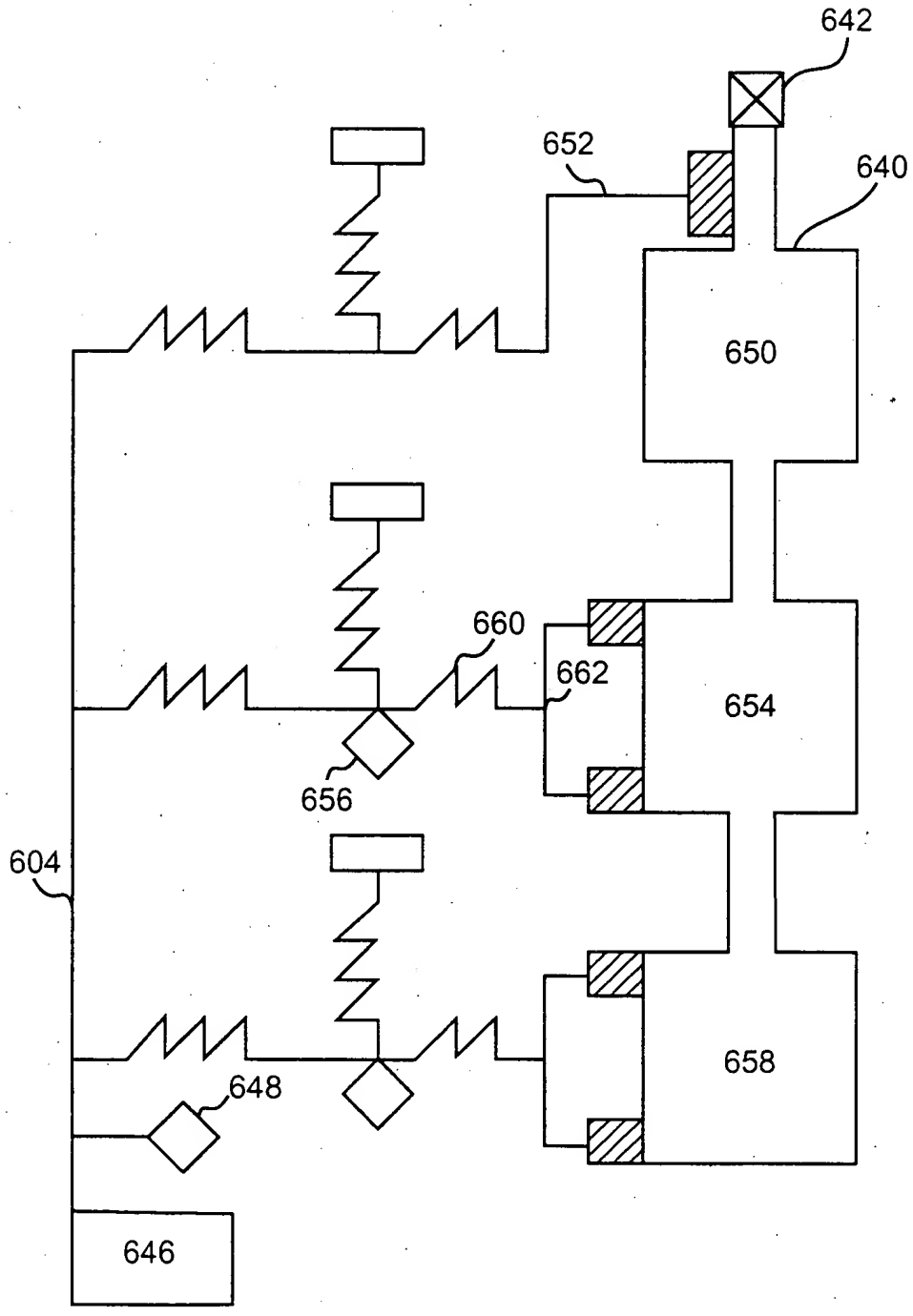


FIG. 6b

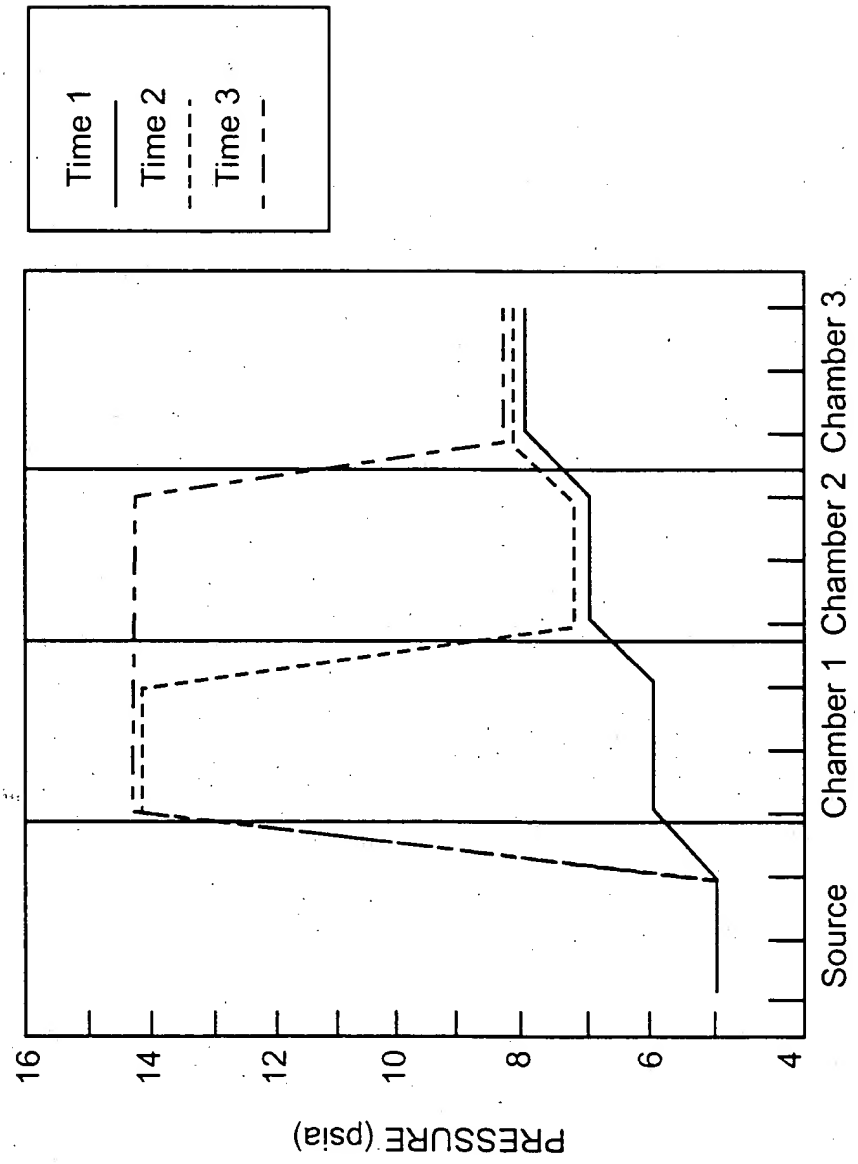

Time 1
Time 2
Time 3
PRESSURE (psia)
16
14
12
10
8
6
4
Source
Chamber 1
Chamber 2
Chamber 3
POSITION

FIG. 6C

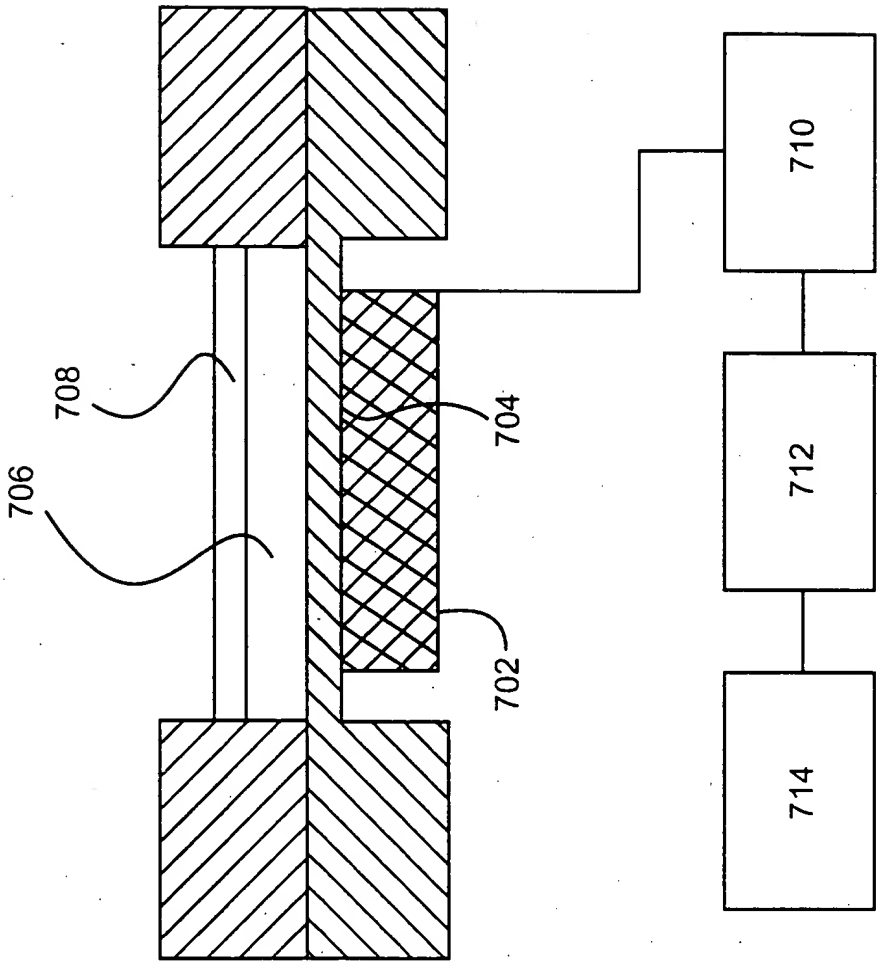


FIG. 7a

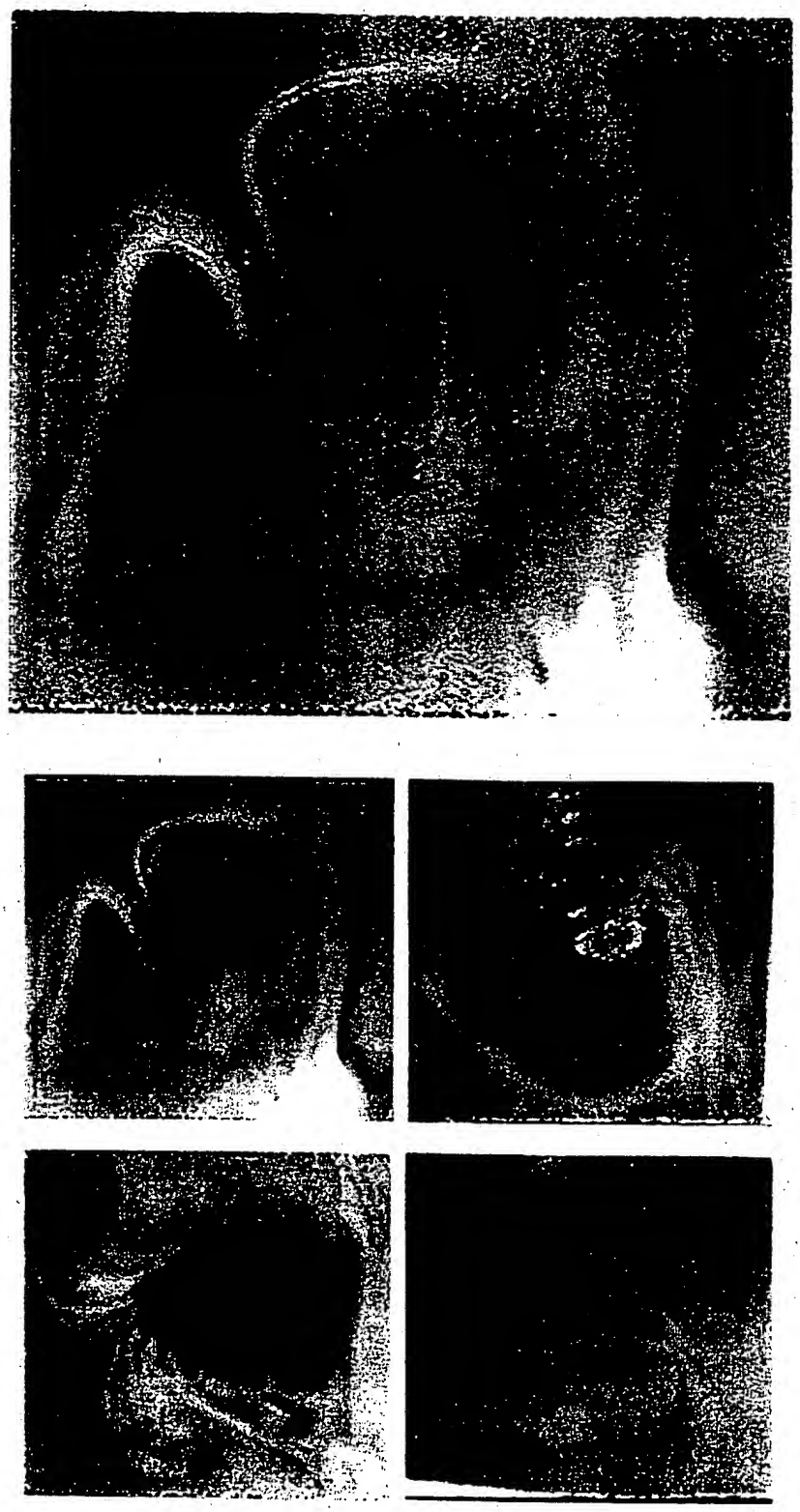


FIG. 7B

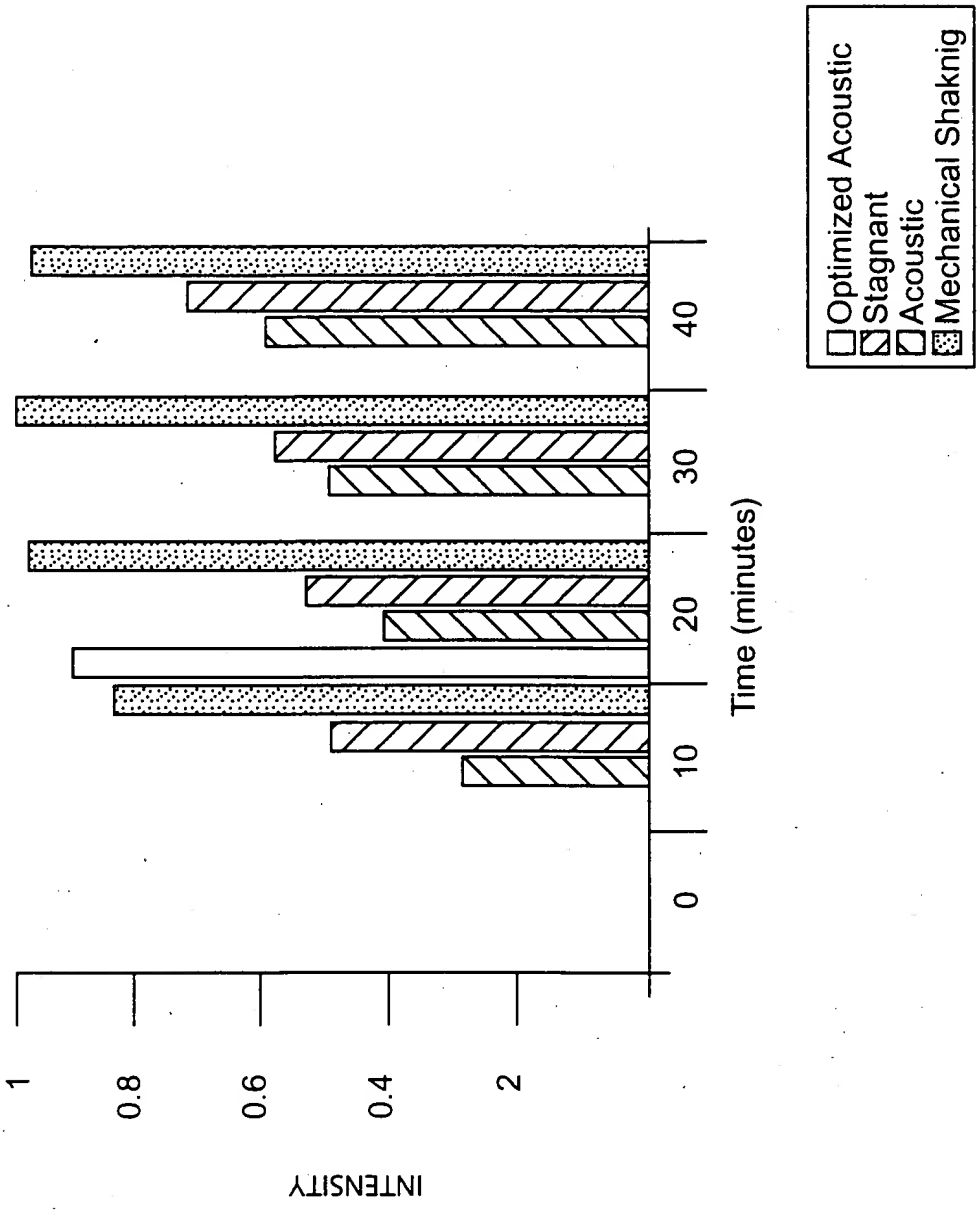

Optimized Acoustic
Stagnant
Acoustic
Mechanical Shaknig
Time (minutes)
0
10
20
30
40
INTENSITY
1
0.8
0.6
0.4
2

FIG. 7c

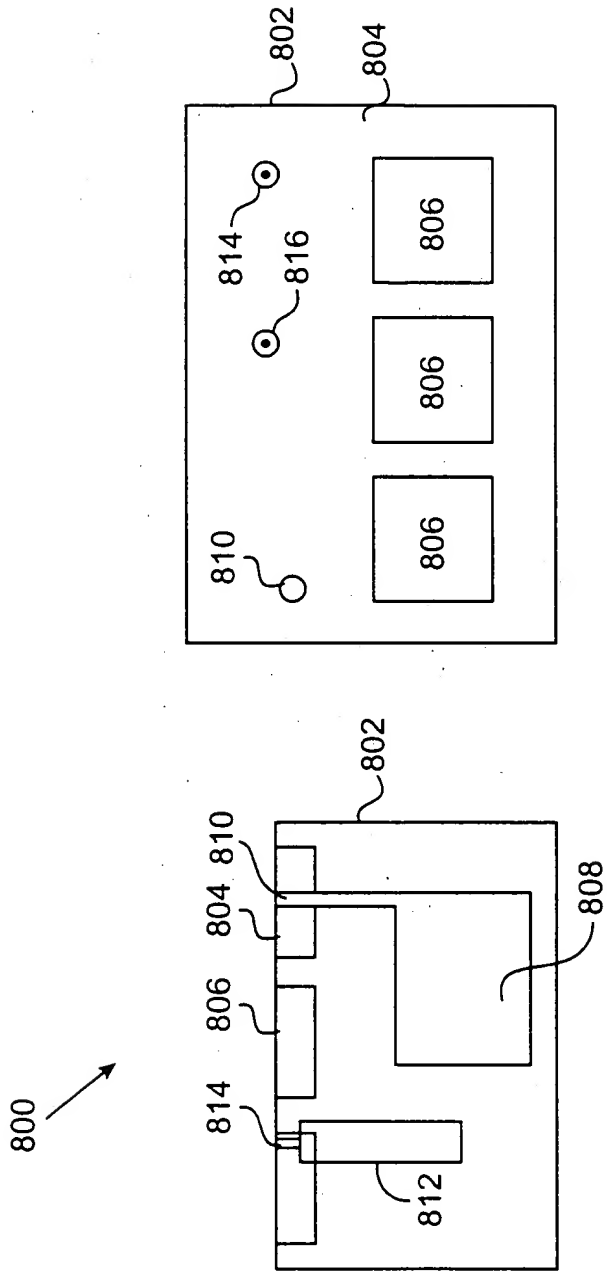
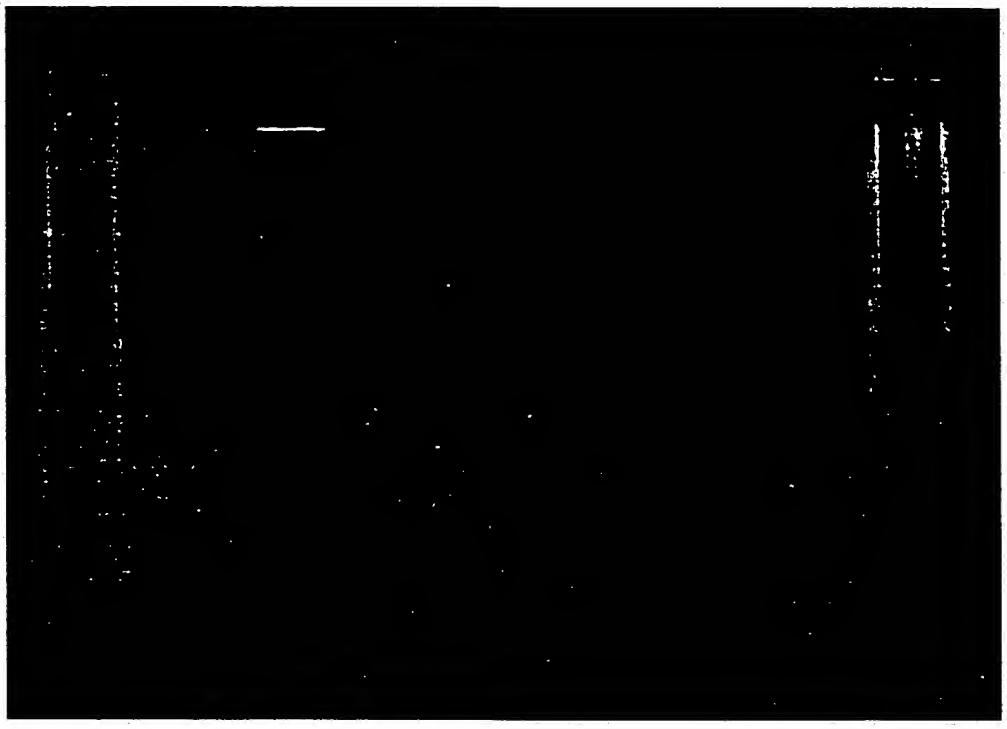


FIG. 8a

FIG. 8b

FIG. 8a & 8b

t = 0 5 10 30 60 120 minutes



Correct Call Rates:

74% 95.8% 95.9%

95.9% 95.5% 83%

FIG. 9a

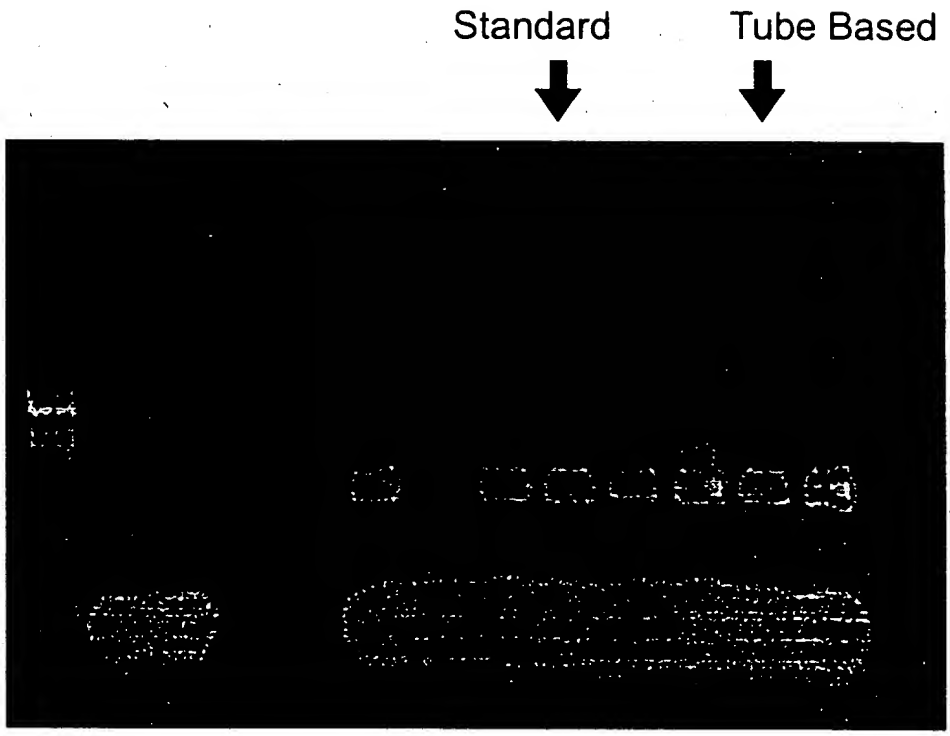


FIG. 9b

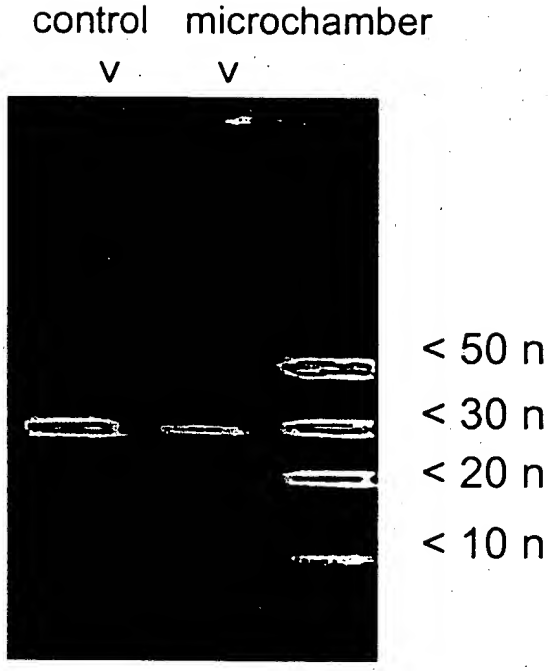


FIG. 9c

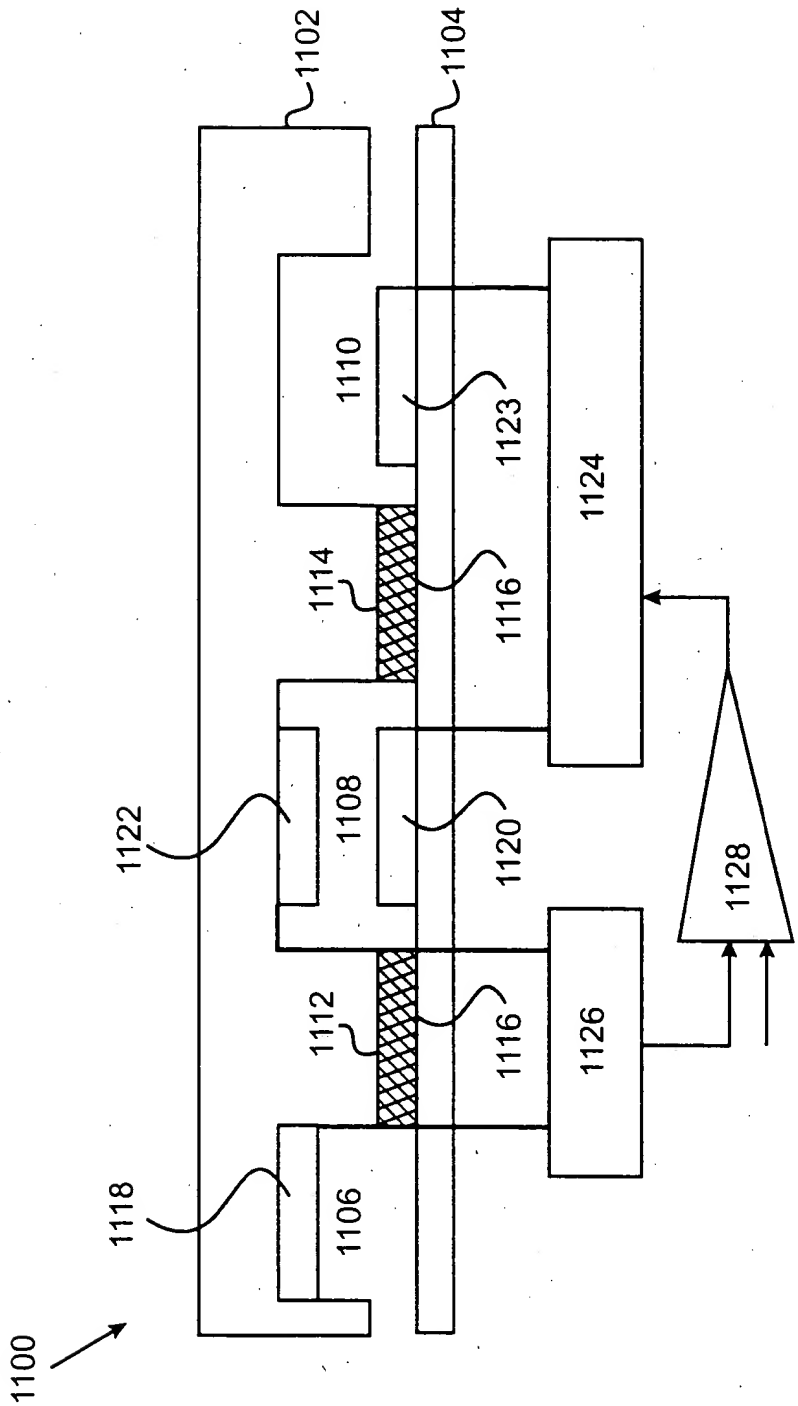

1100
1102
1104
1106
1108
1110
1112
1114
1116
1116
1118
1120
1122
1123
1124
1126
1128

FIG. 10

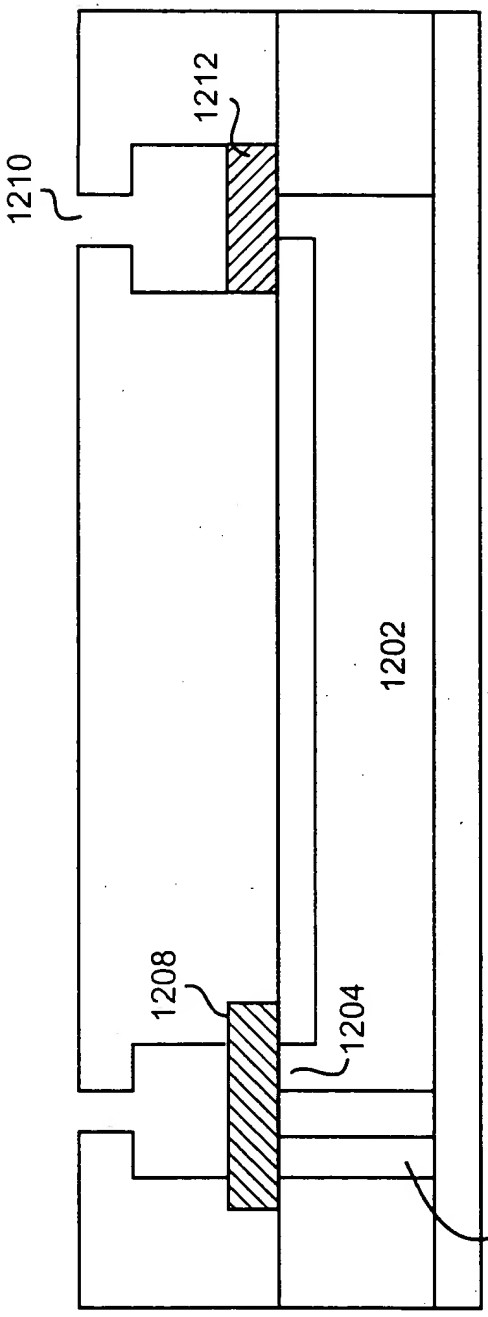


FIG. 11A

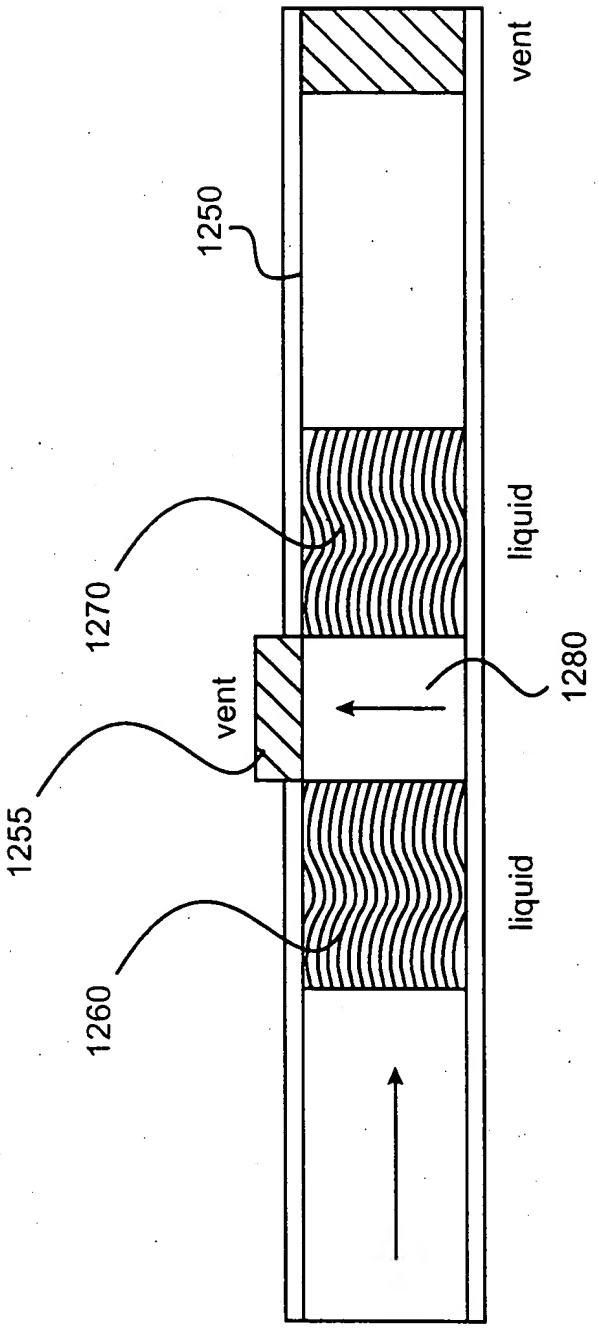


FIG. 11b

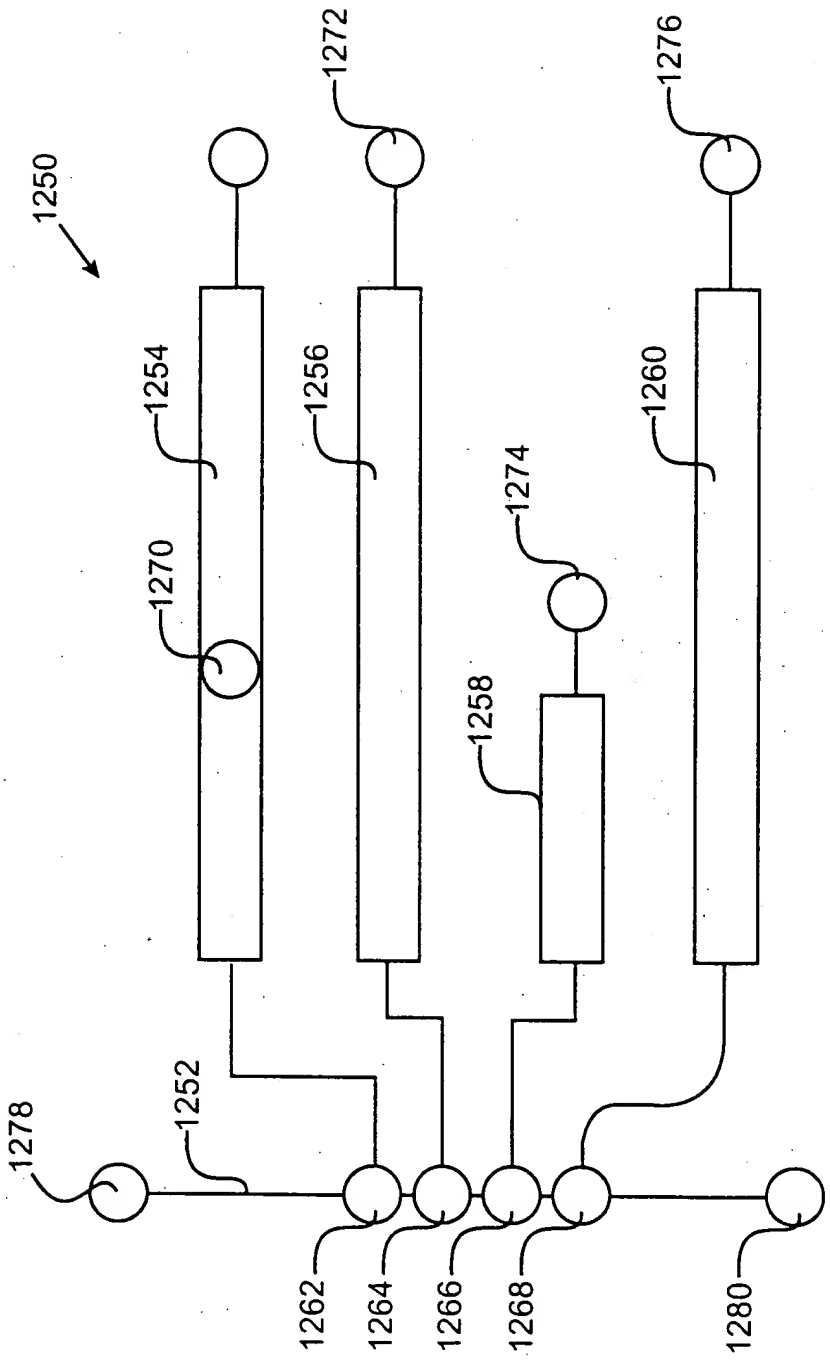

1250
1254
1256
1258
1260
1262
1264
1266
1268
1270
1272
1274
1276
1278
1280
1252

FIG. 11c

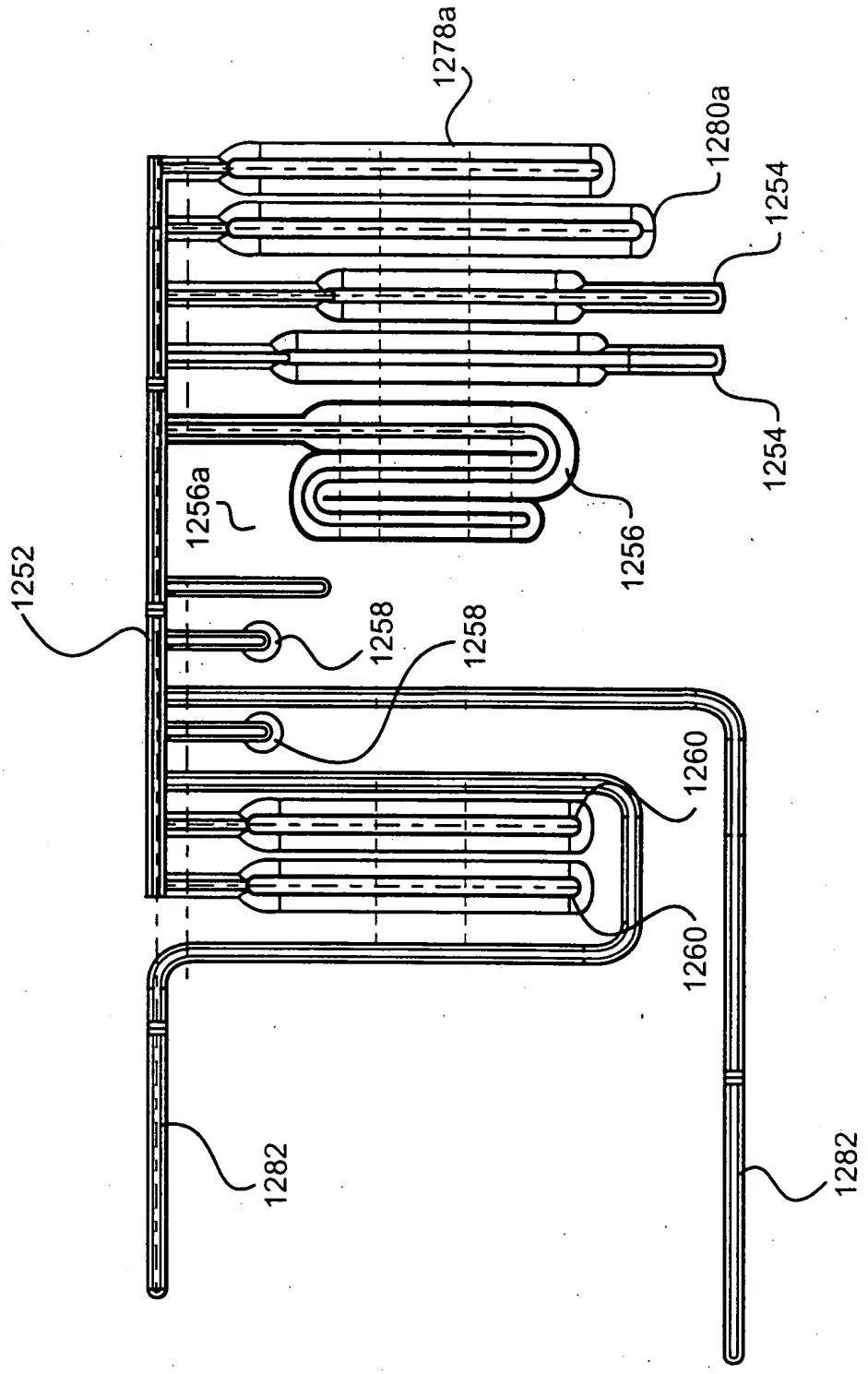

1278a
1280a
1254
1254
1256a
1256
1252
1258
1258
1260
1260
1282
1282

FIG. 11d

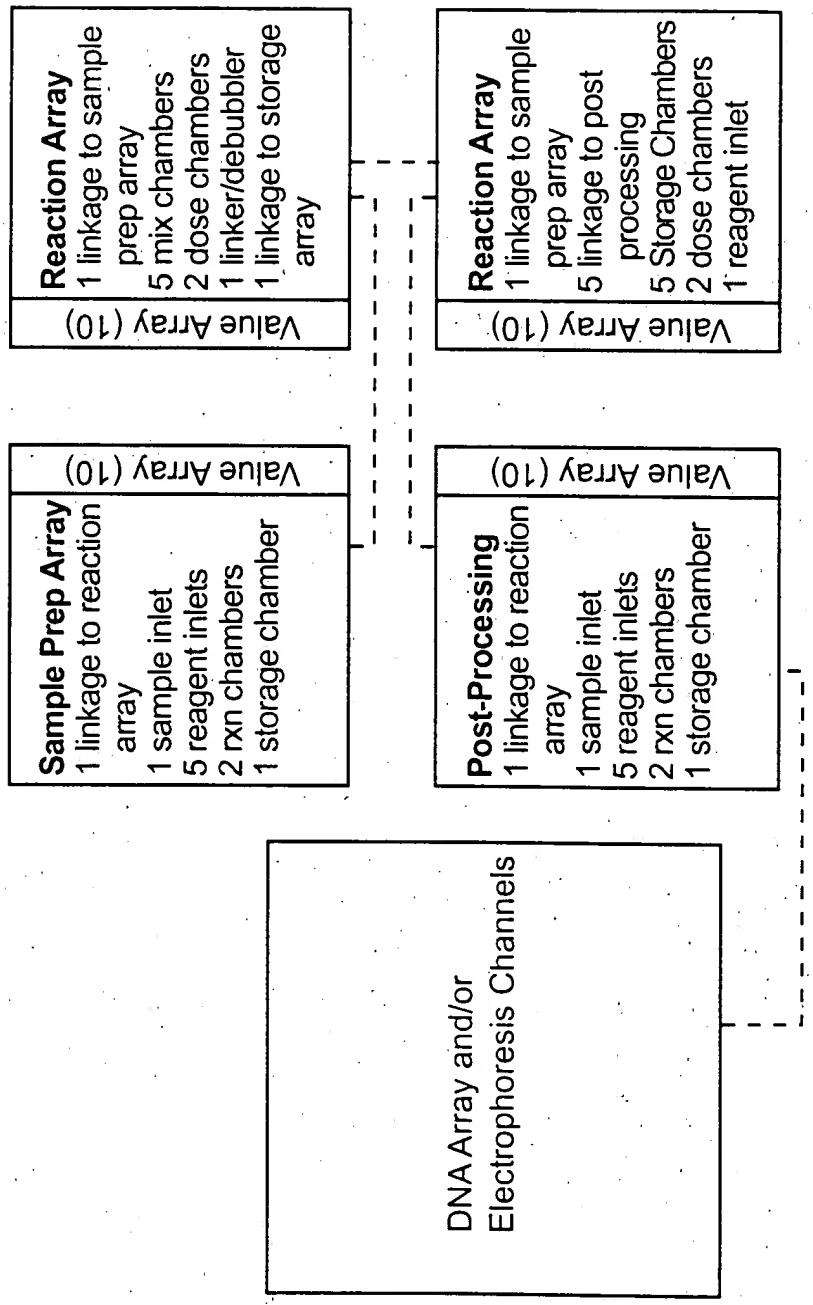

Reaction Array
1 linkage to sample prep array
5 mix chambers
2 dose chambers
1 linker/debubbler
1 linkage to storage array
Value Array (10)
Reaction Array
1 linkage to sample prep array
5 linkage to post processing
5 Storage Chambers
2 dose chambers
1 reagent inlet
Value Array (10)
Sample Prep Array
1 linkage to reaction array
1 sample inlet
5 reagent inlets
2 rxn chambers
1 storage chamber
Value Array (10)
Post-Processing
1 linkage to reaction array
1 sample inlet
5 reagent inlets
2 rxn chambers
1 storage chamber
Value Array (10)
DNA Array and/or
Electrophoresis Channels

FIG. 12

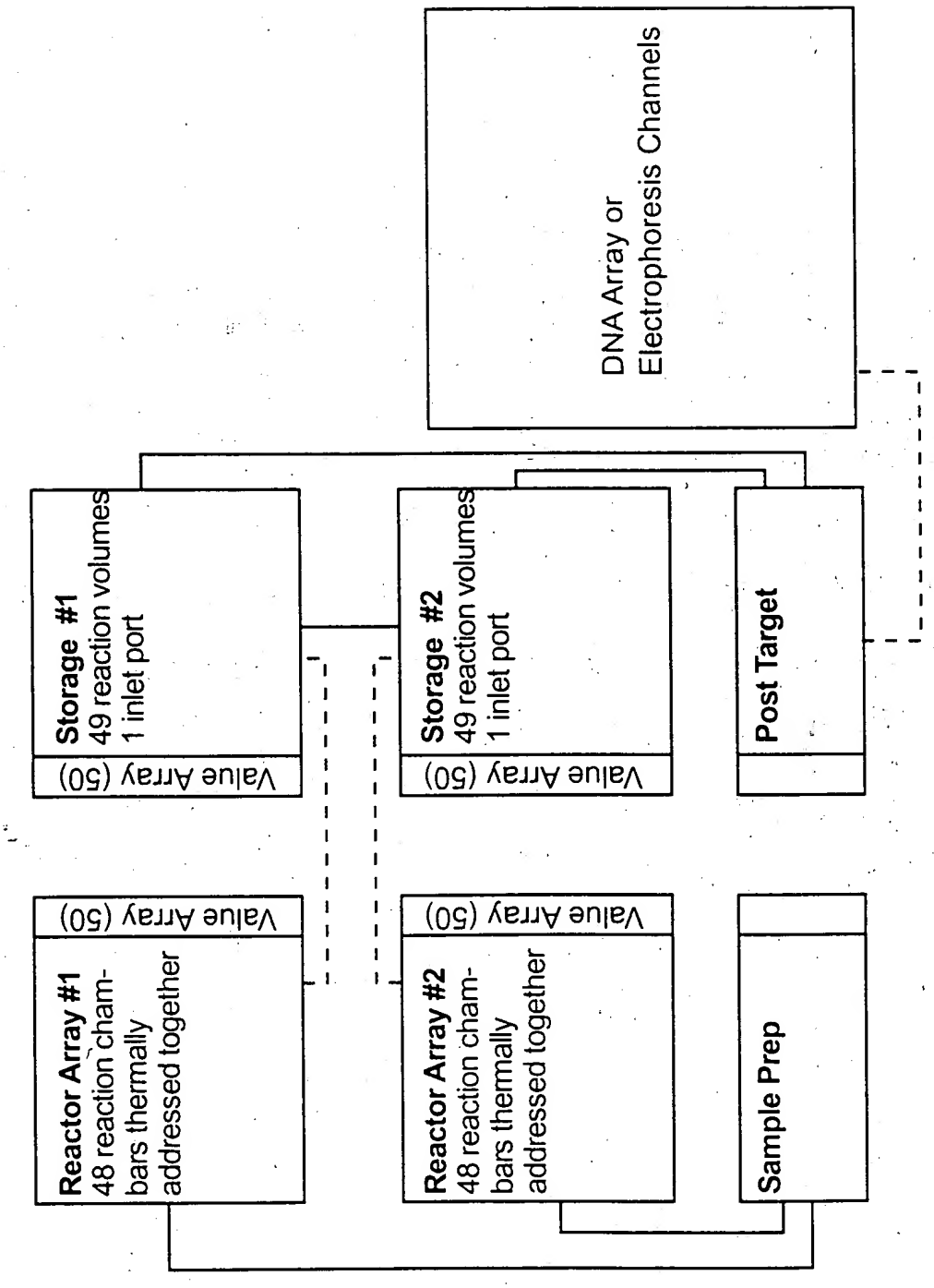

DNA Array or
Electrophoresis Channels
Storage #1
49 reaction volumes
1 inlet port
Valve Array (50)
Storage #2
49 reaction volumes
1 inlet port
Valve Array (50)
Post Target
Reactor Array #1
48 reaction cham-
bars thermally
addressed together
Valve Array (50)
Reactor Array #2
48 reaction cham-
bars thermally
addressed together
Valve Array (50)
Sample Prep

FIG. 13

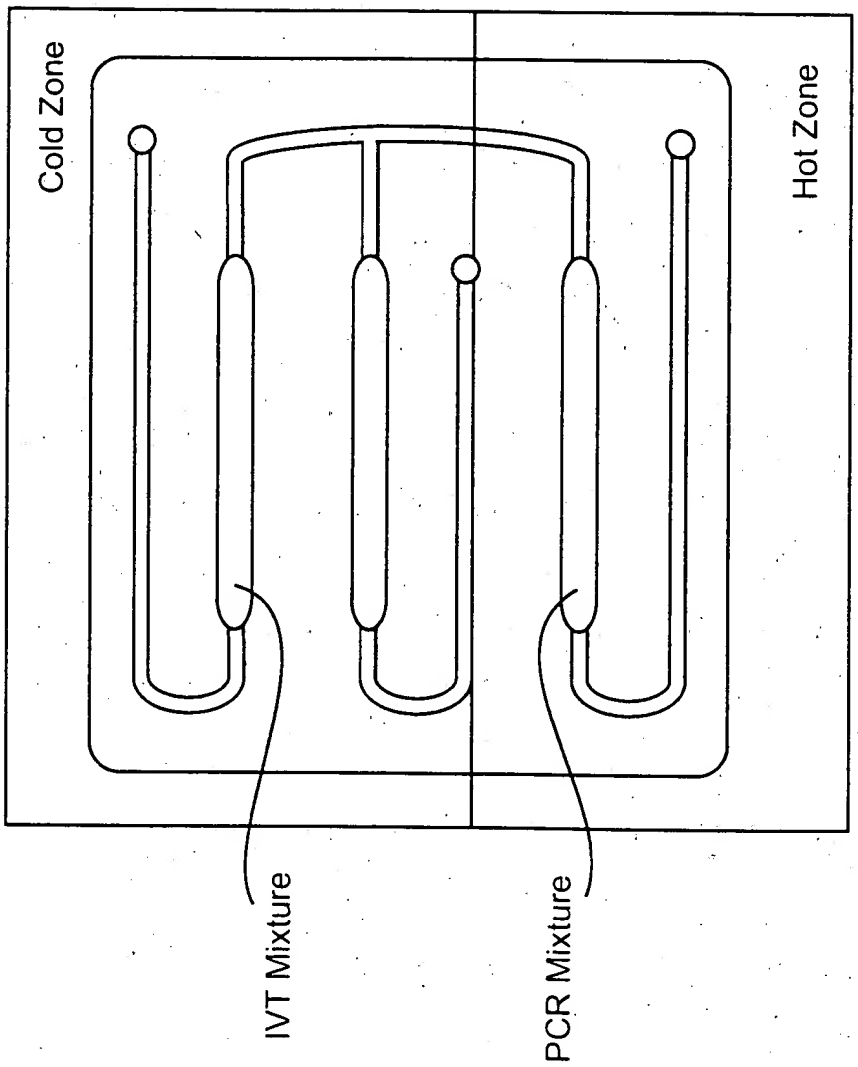


FIG. 14a

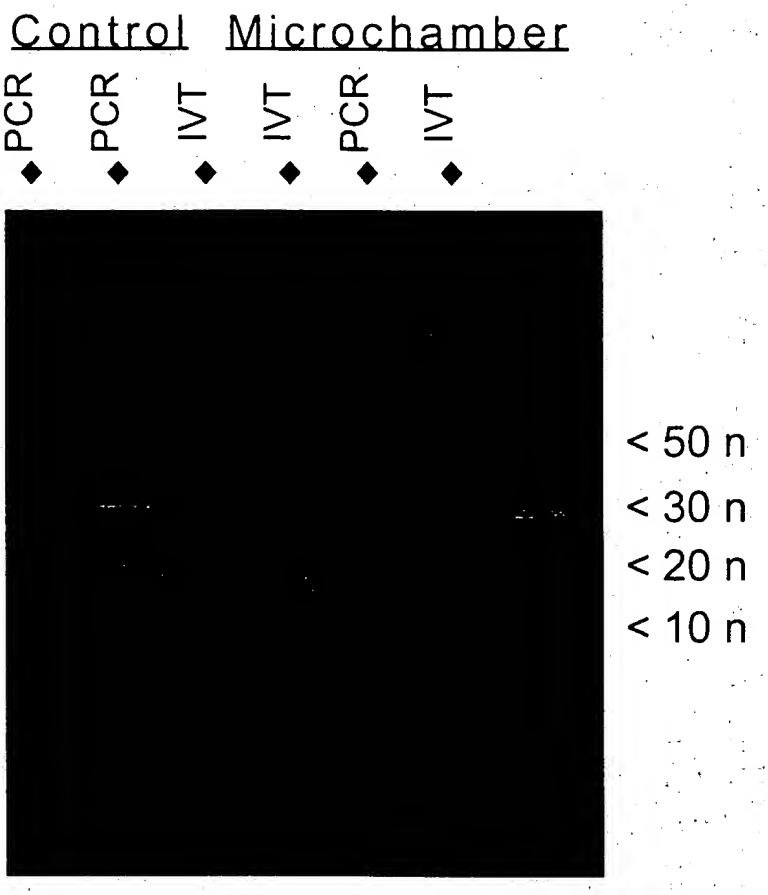


FIG. 14b

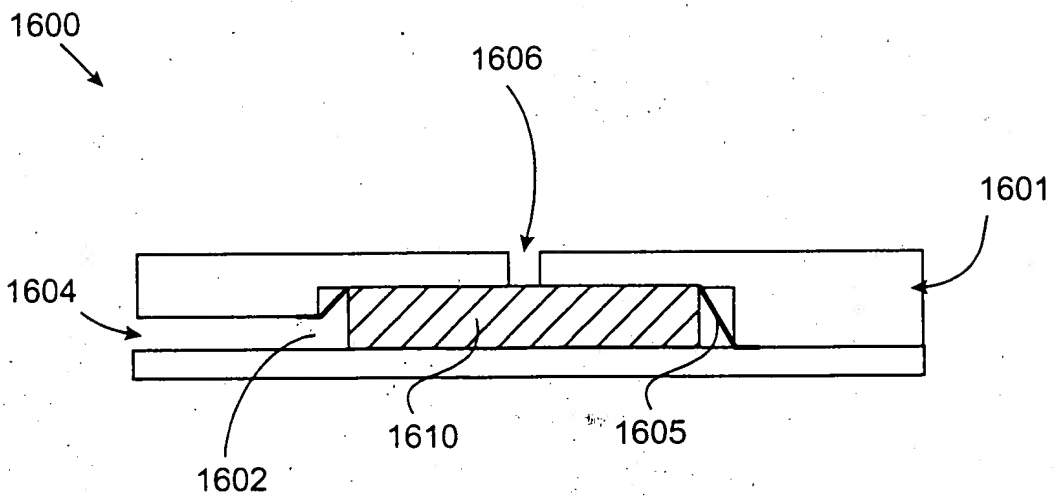

1600
1606
1601
1604
1610
1605
1602

FIG. 15

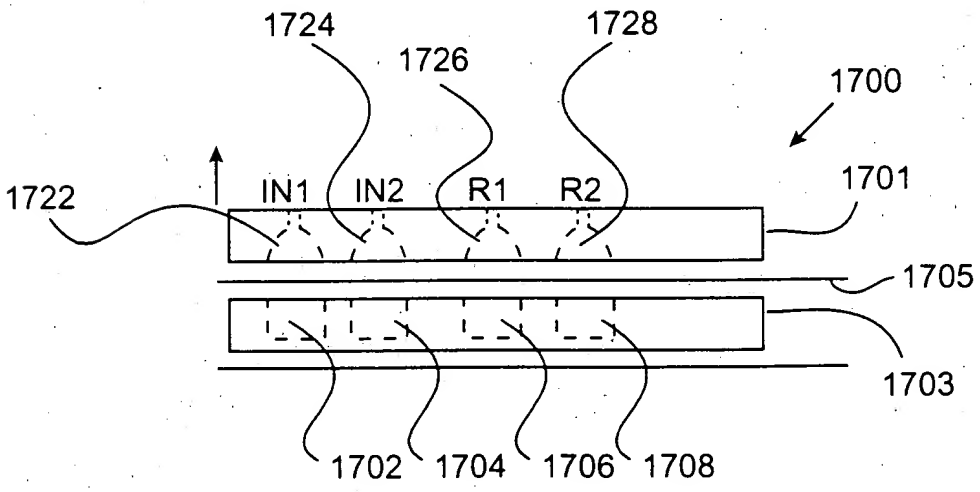

1724
1726
1728
1700
1722
IN1
IN2
R1
R2
1701
1705
1703
1702
1704
1706
1708

FIG. 16

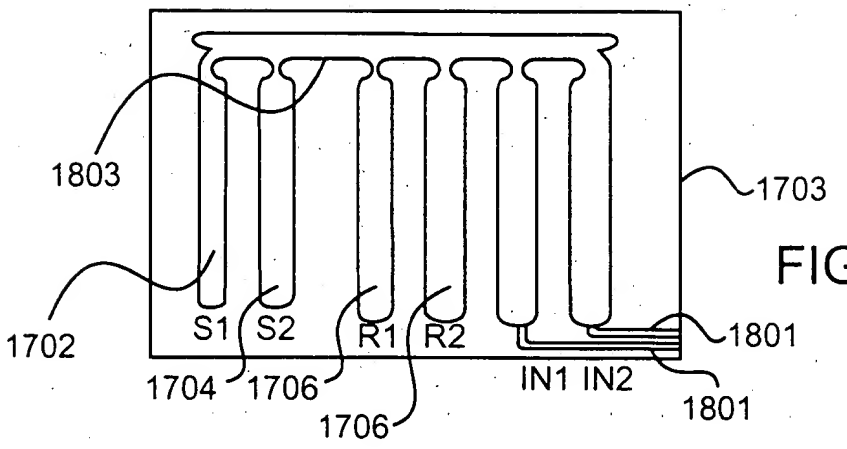


FIG. 17a

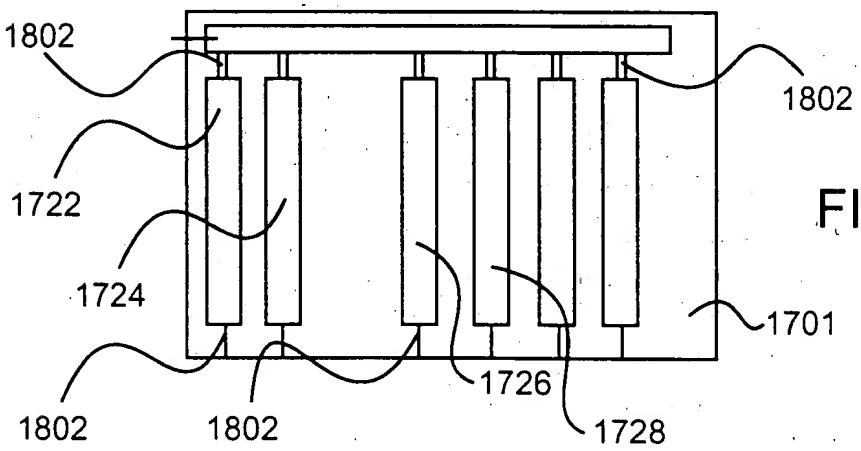


FIG. 17b

FIG. 17

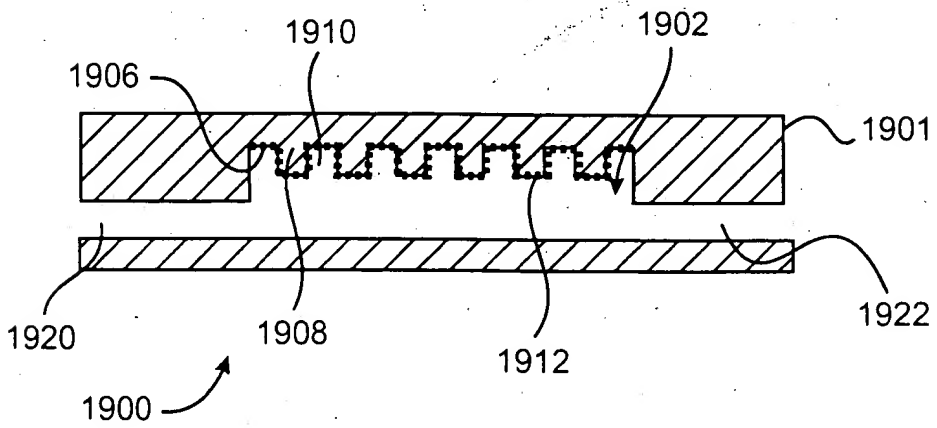


FIG. 18

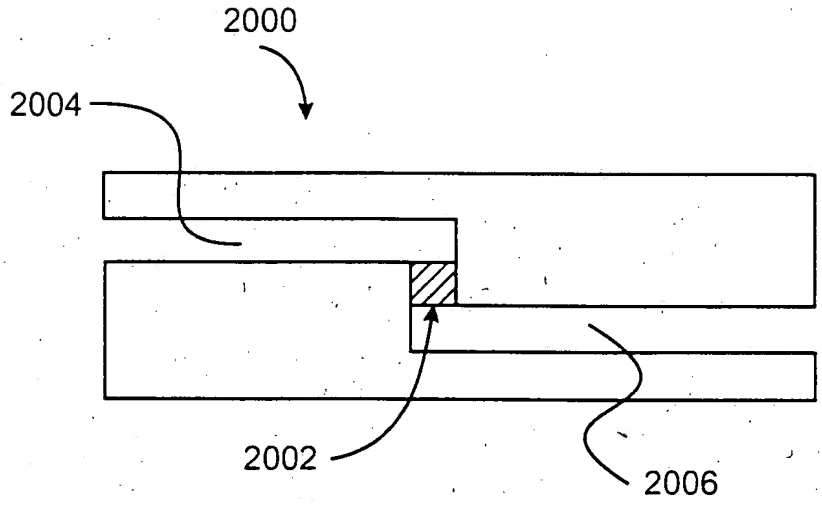


FIG. 19

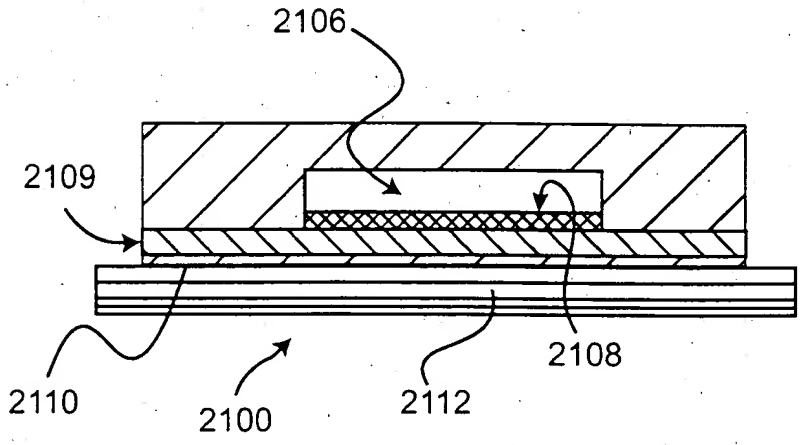


FIG. 20

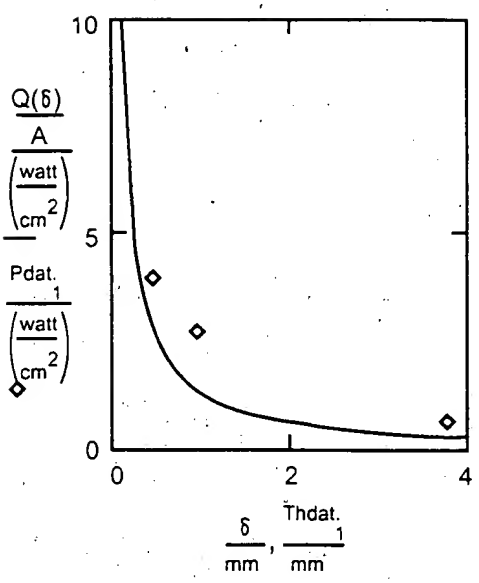


FIG. 21a

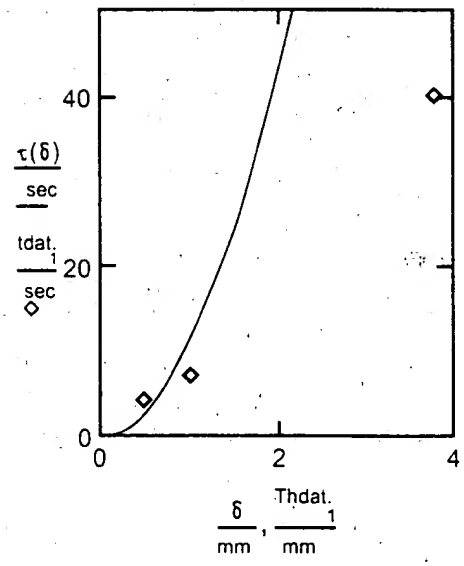


FIG. 21b

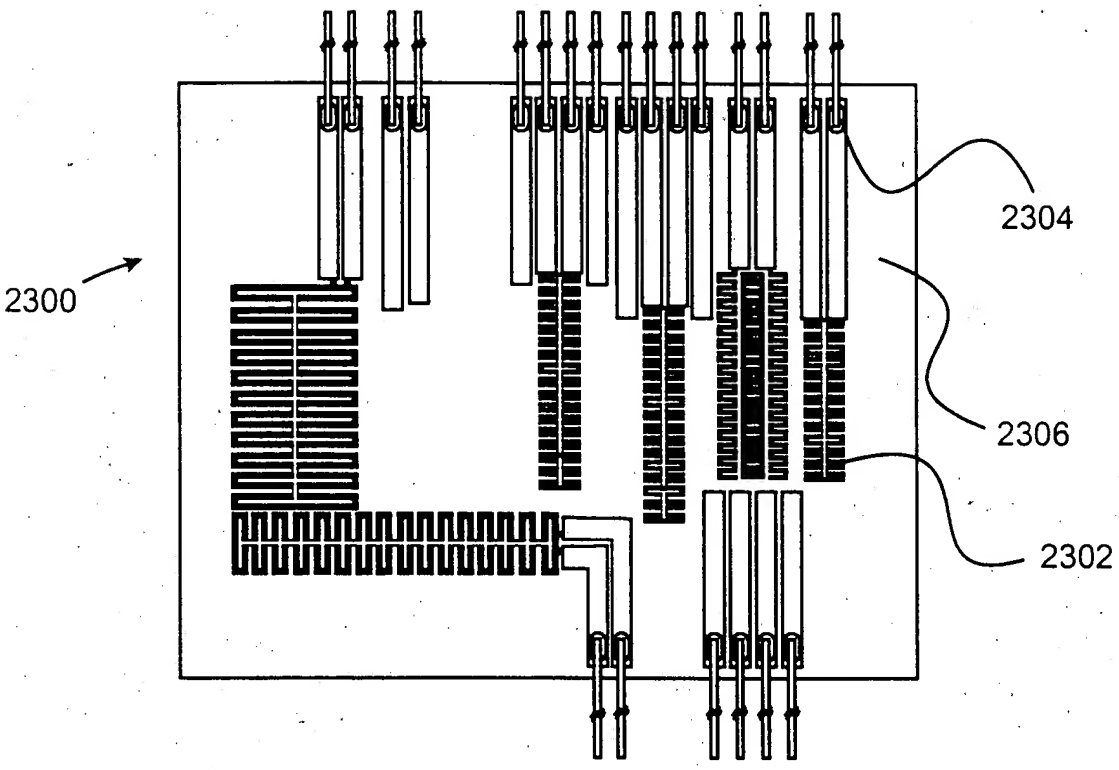

2300
2304
2306
2302

FIG. 22

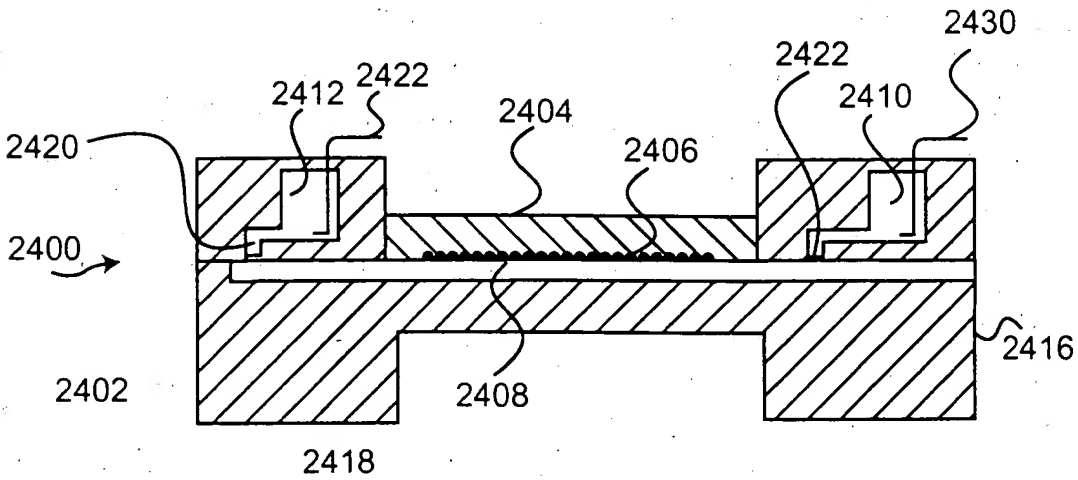

2430
2422
2412
2422
2404
2410
2420
2406
2400
2416
2402
2408
2418

FIG. 23

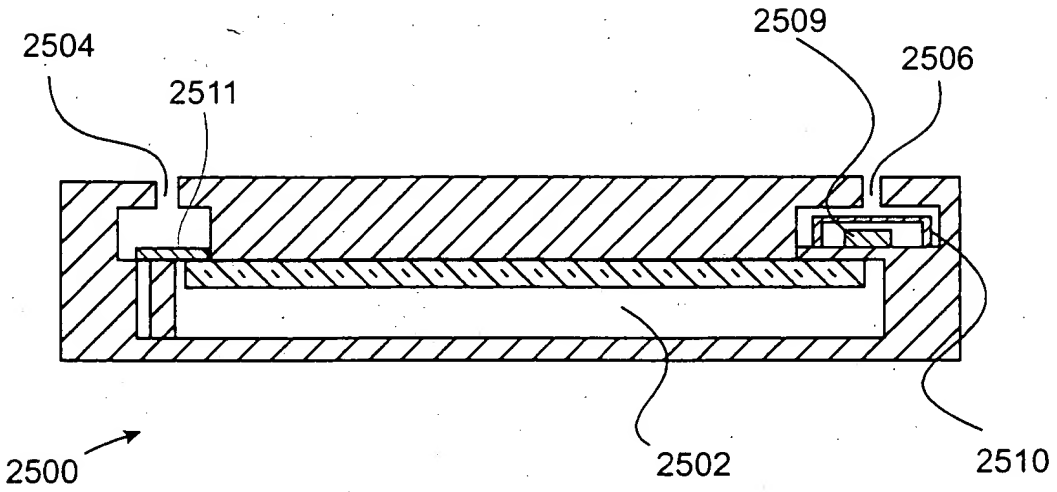


FIG. 24

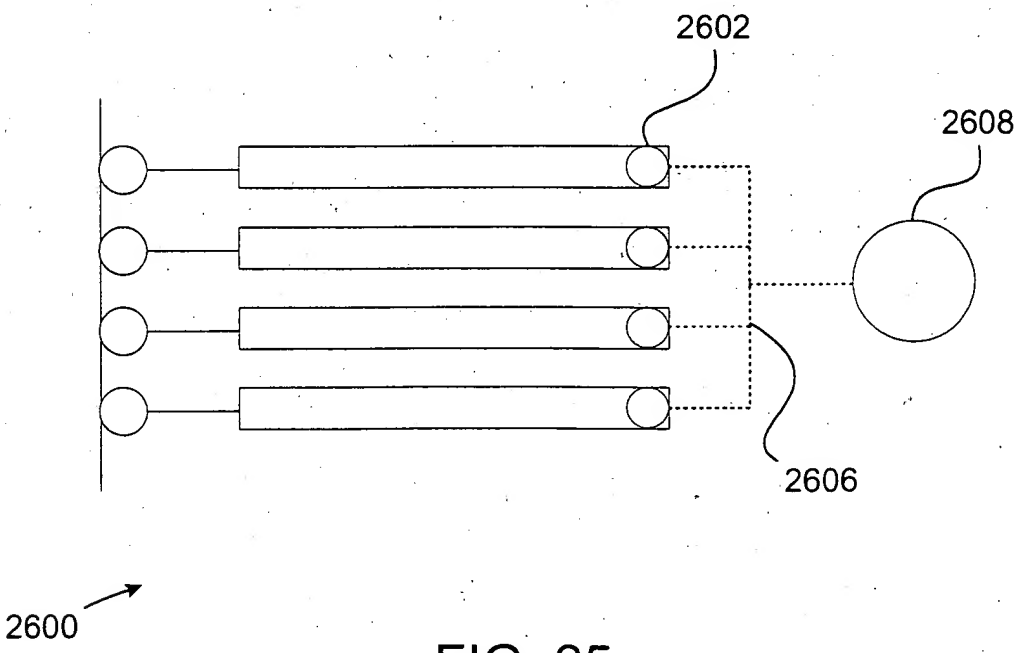


FIG. 25

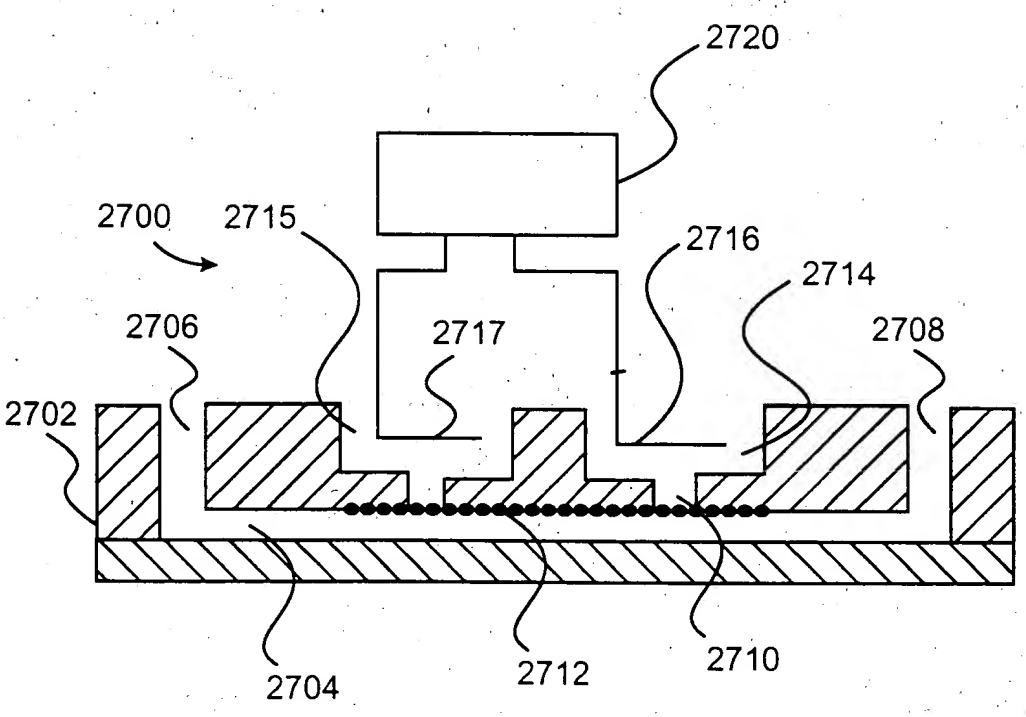


FIG. 26

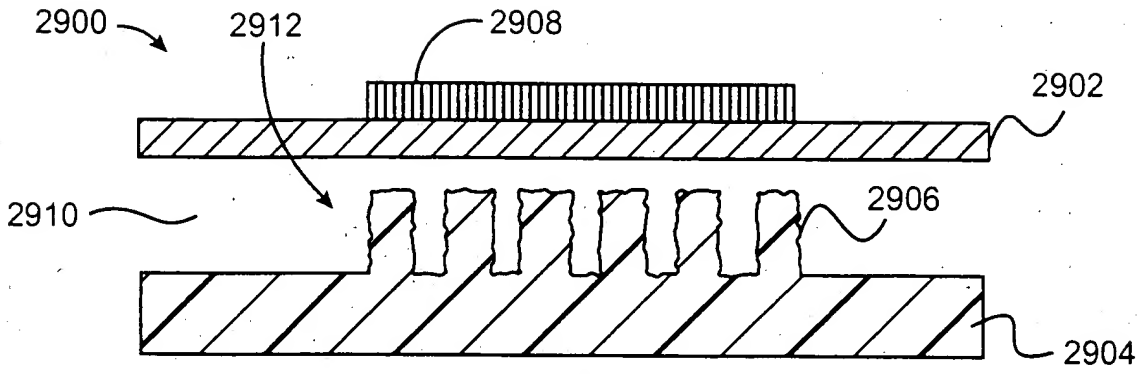

2900
2912
2908
2902
2910
2906
2904

FIG. 27

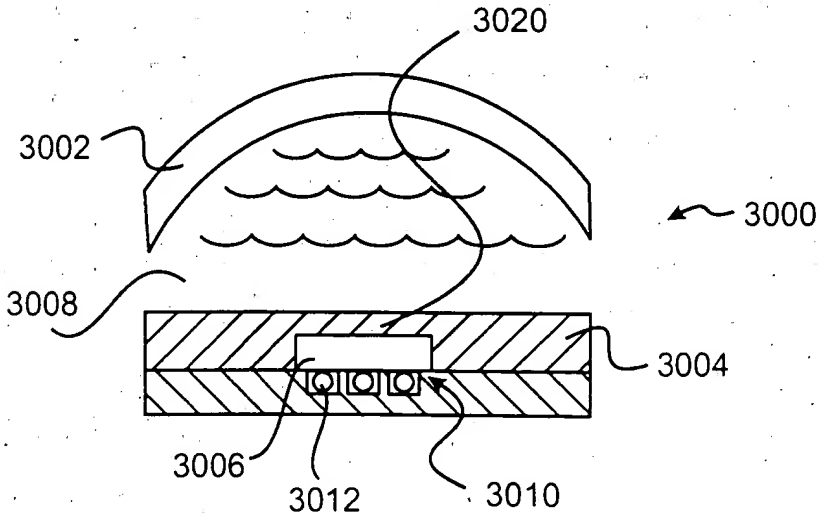

3020
3002
3000
3008
3004
3006
3012
3010

FIG. 28

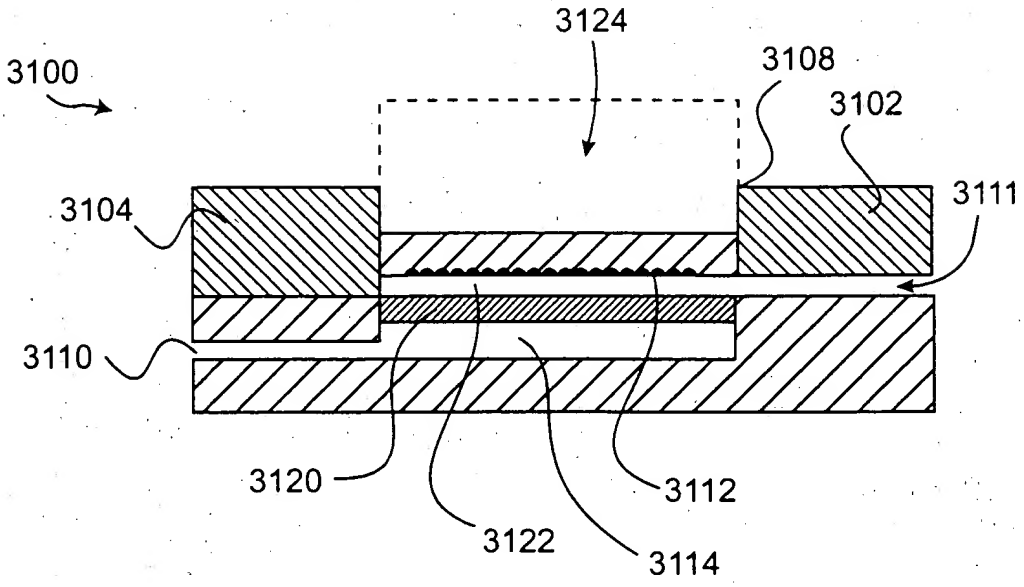


FIG. 29

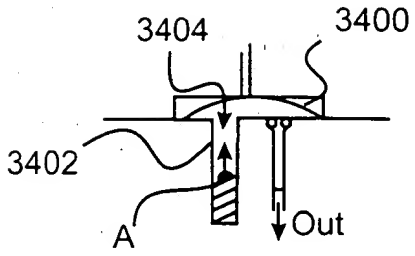


FIG. 30a

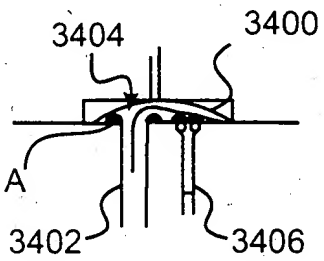


FIG. 30b

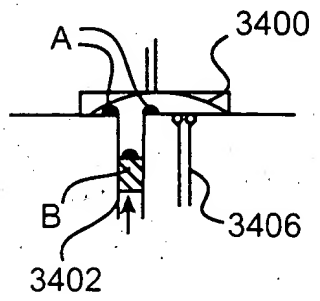


FIG. 30c

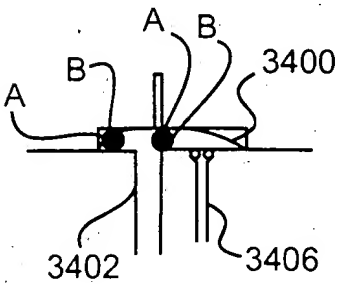


FIG. 30d

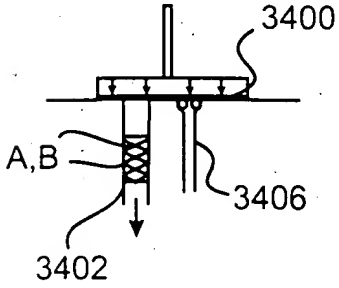


FIG. 30e

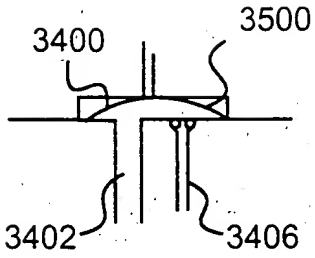


FIG. 31a

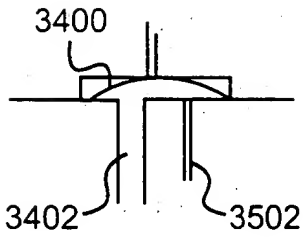


FIG. 31b

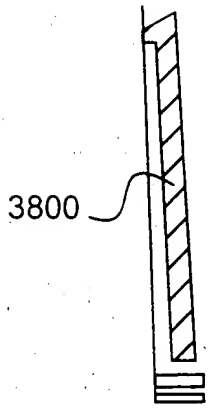


FIG. 32a

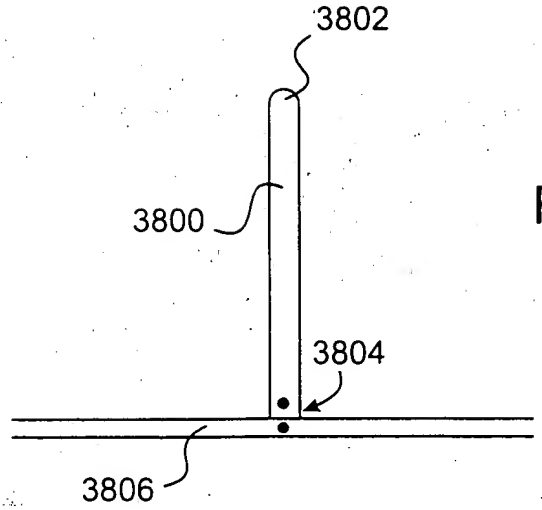


FIG. 32b

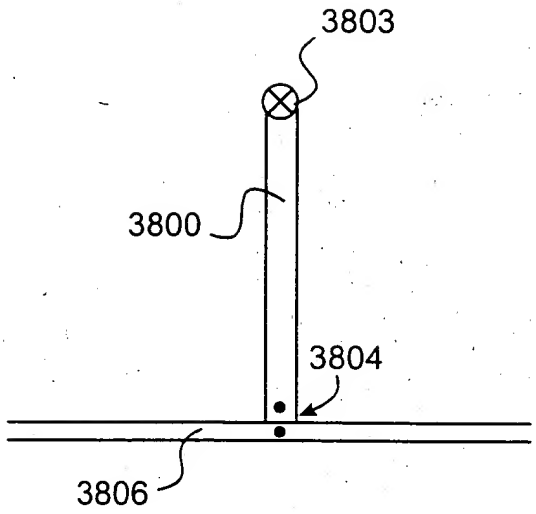


FIG. 32c

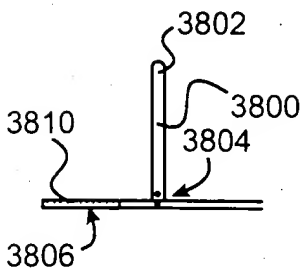


FIG. 33a

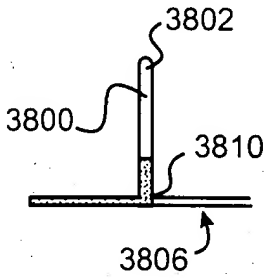


FIG. 33b

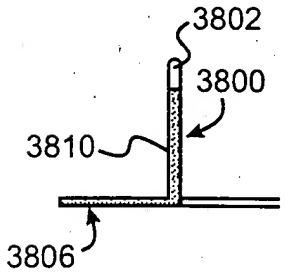


FIG. 33c

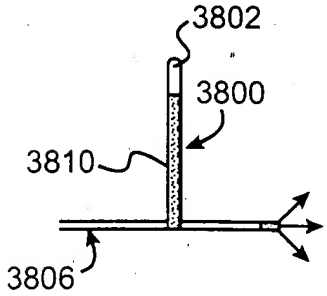


FIG. 33d

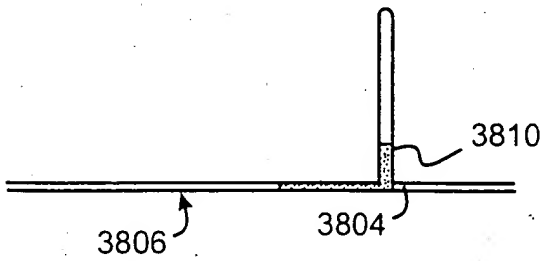


FIG. 33e

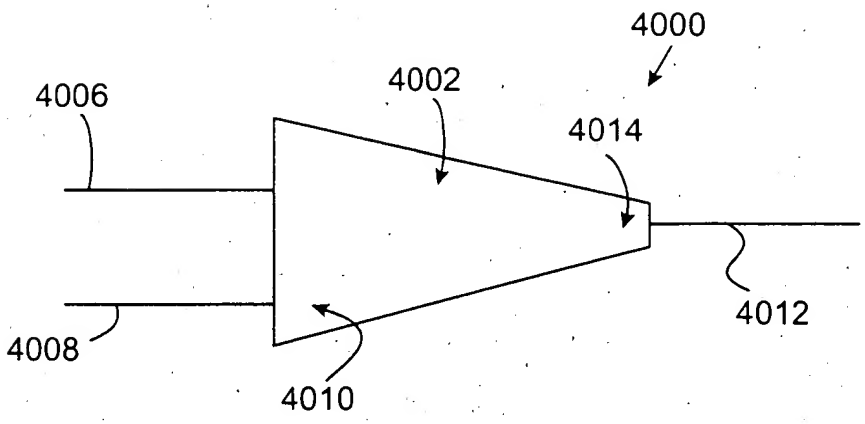


FIG. 34

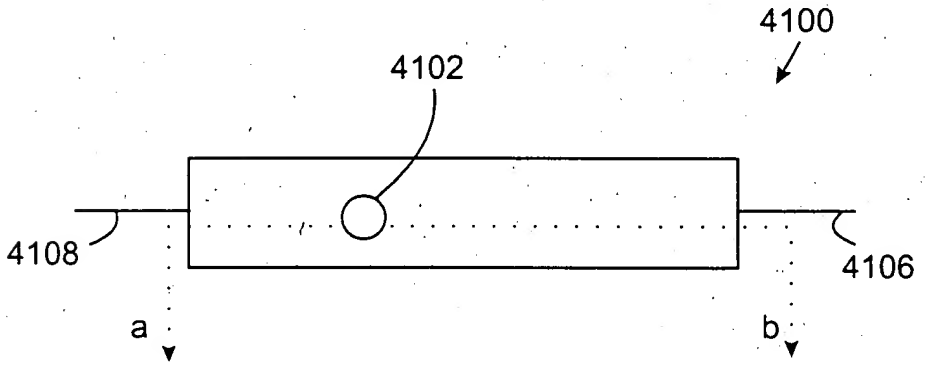


FIG. 35a

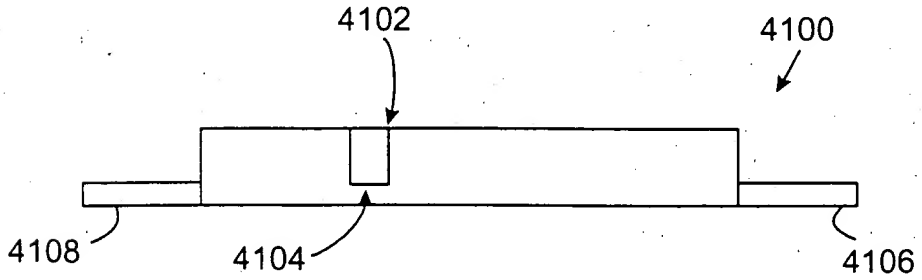


FIG. 35b

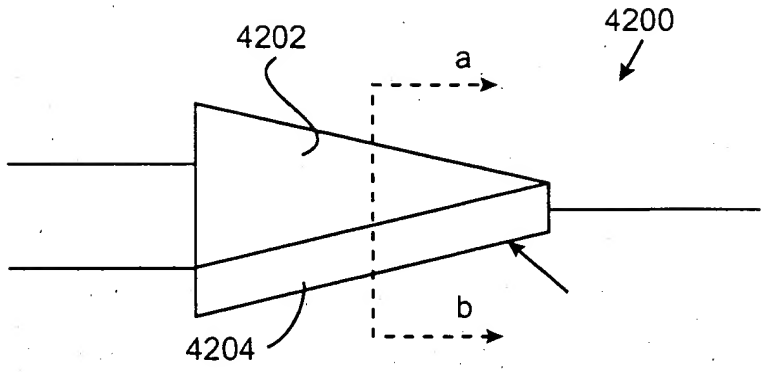


FIG. 36a

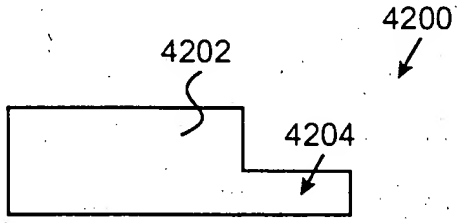


FIG. 36b

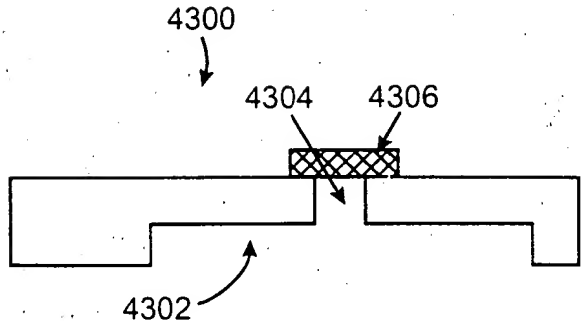


FIG. 37a

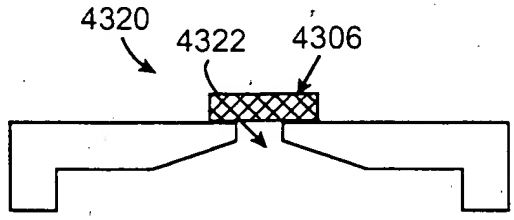


FIG. 37b

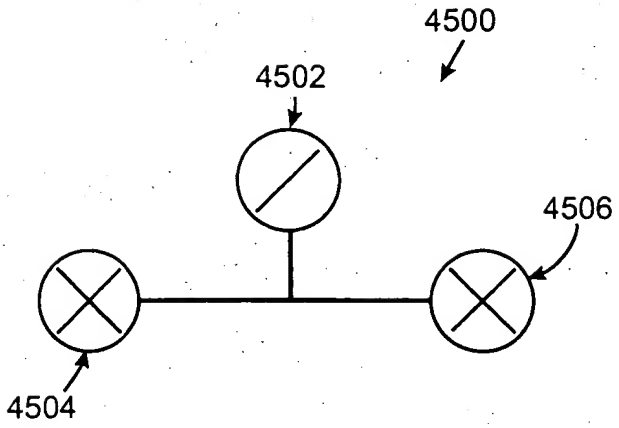


FIG. 38

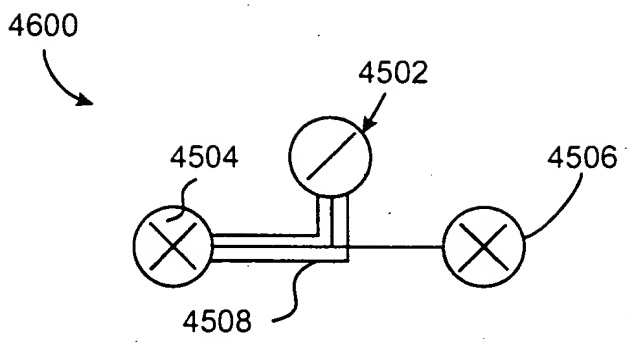


FIG. 39a

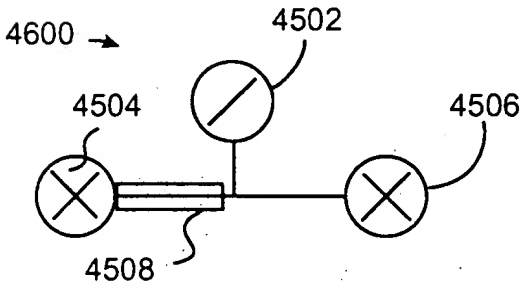


FIG. 39b

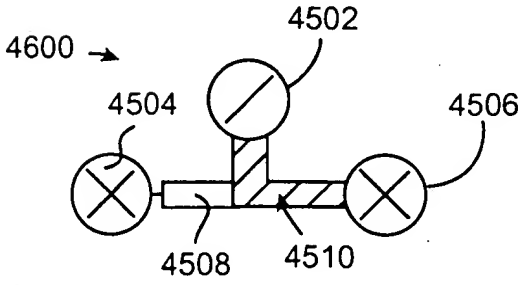


FIG. 39c

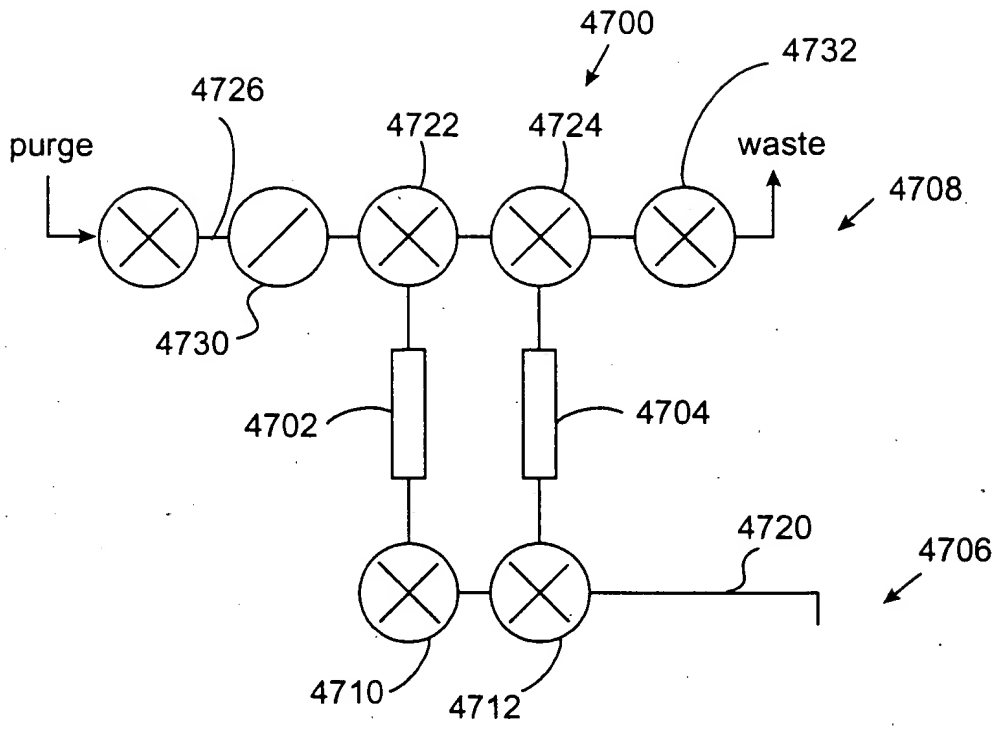

4700
4732
4726
4722
4724
purge
waste
4708
4730
4702
4704
4720
4706
4710
4712

FIG. 40

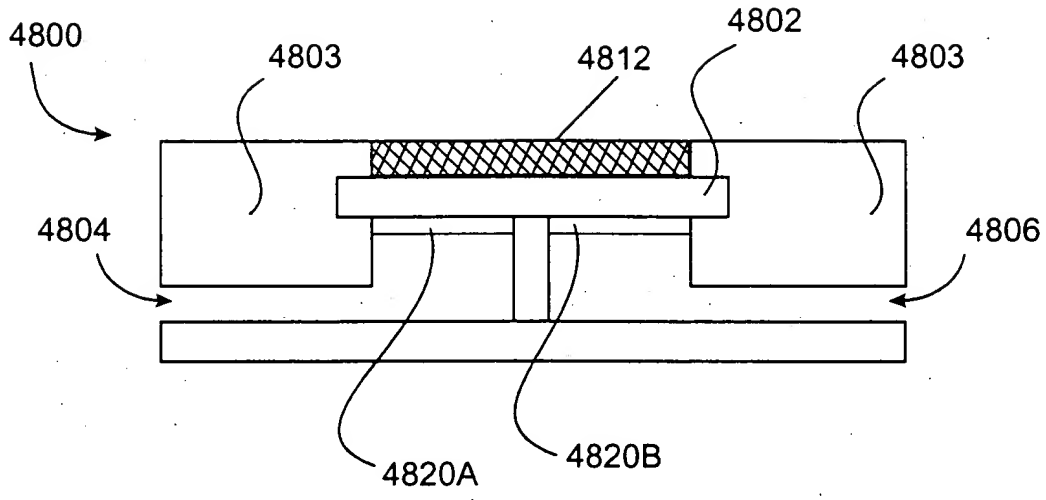


FIG. 41

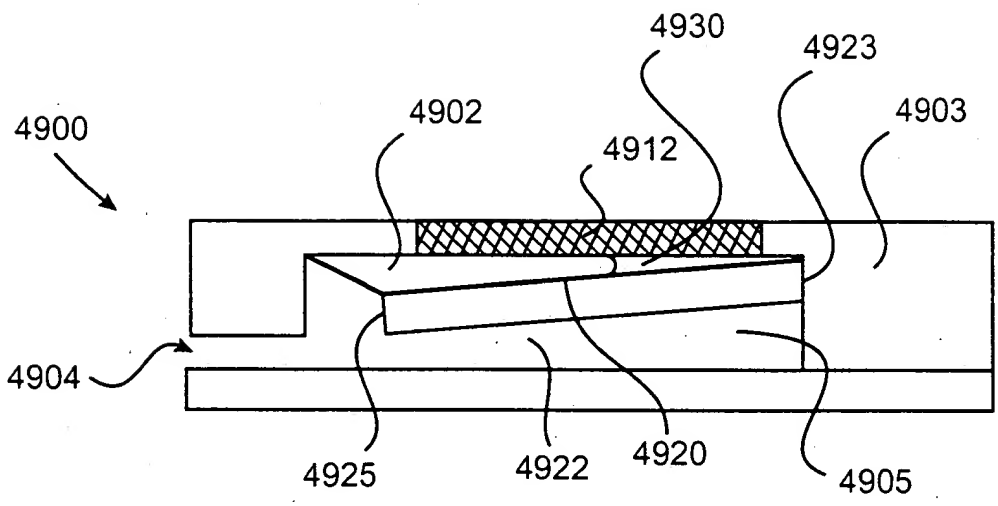
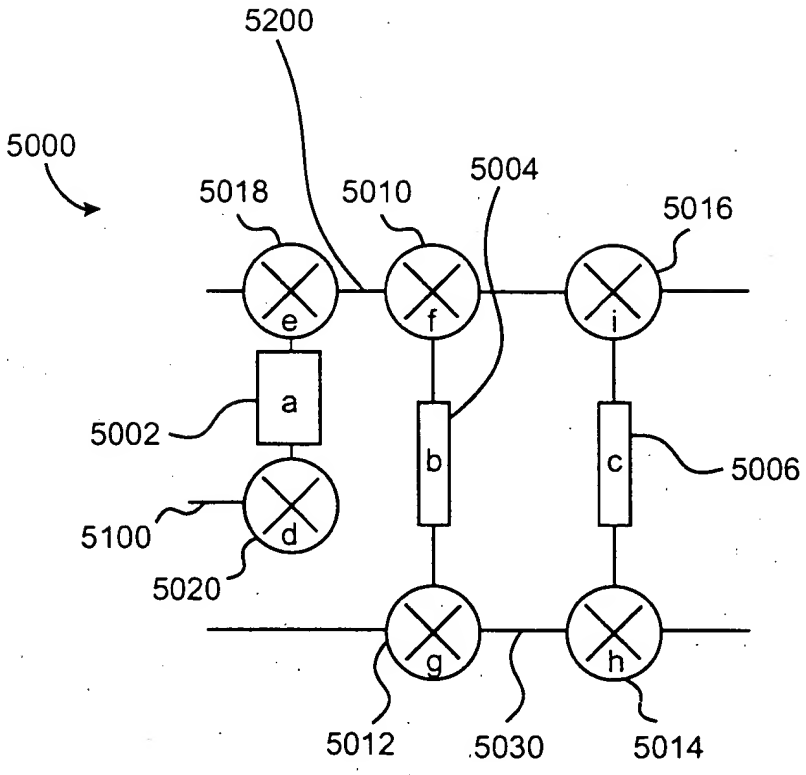


FIG. 42


5200
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5010
5004
5016
e
f
i
a
5002
b
c
5006
5100
d
5020
g
h
5012
5030
5014

FIG. 43

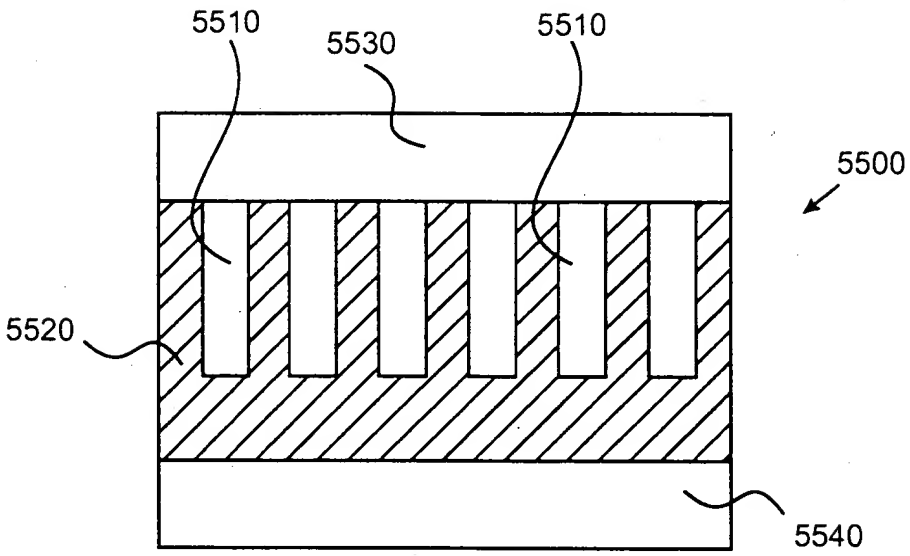


FIG. 44a

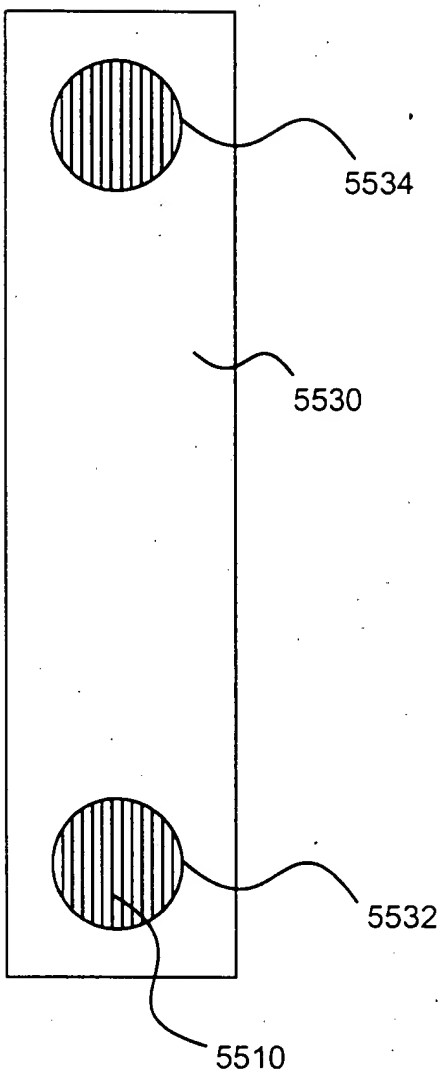


FIG. 44b

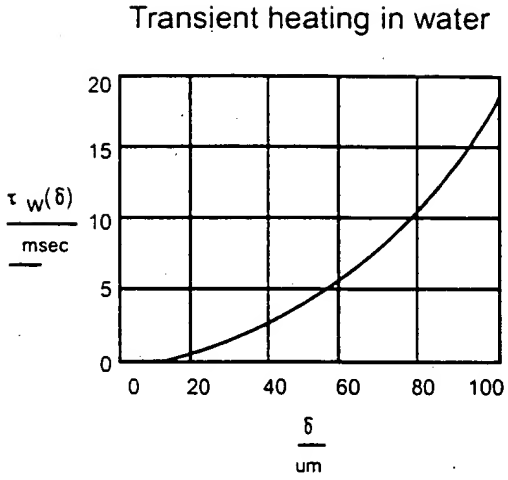


FIG. 44c

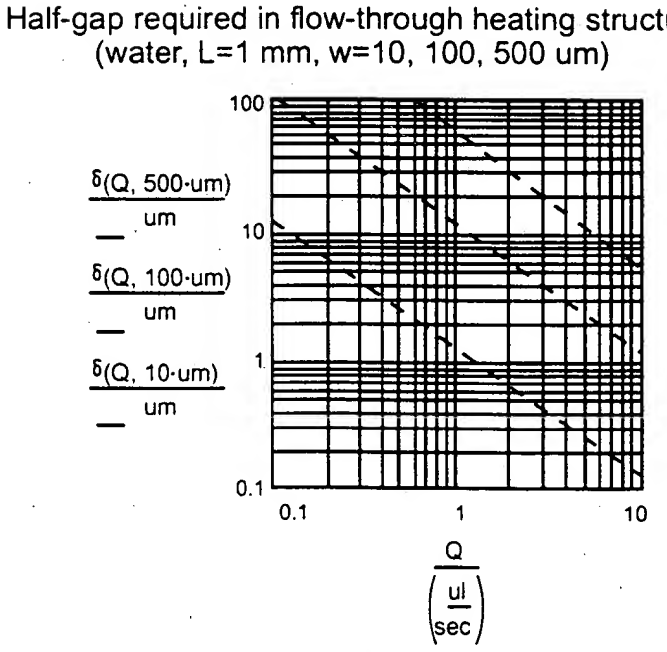


FIG. 44d

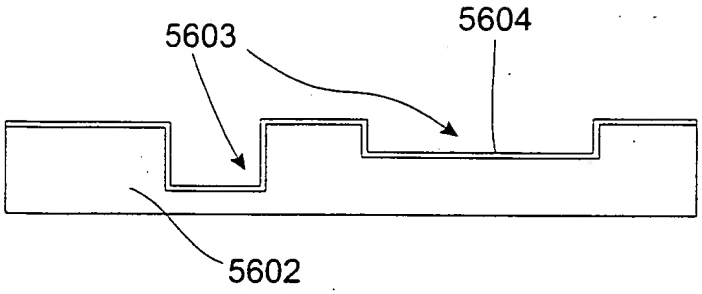


FIG. 45a

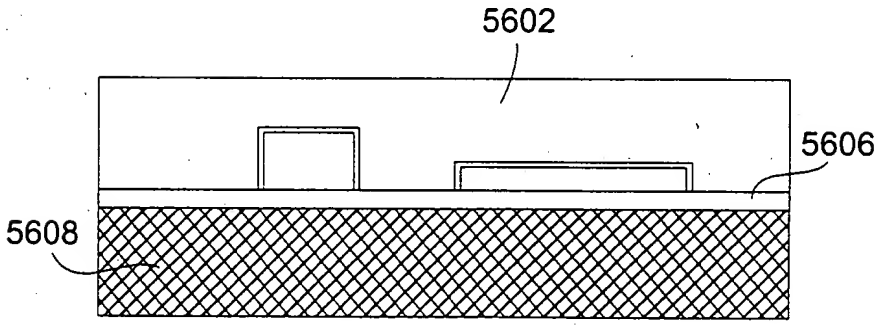


FIG. 45b

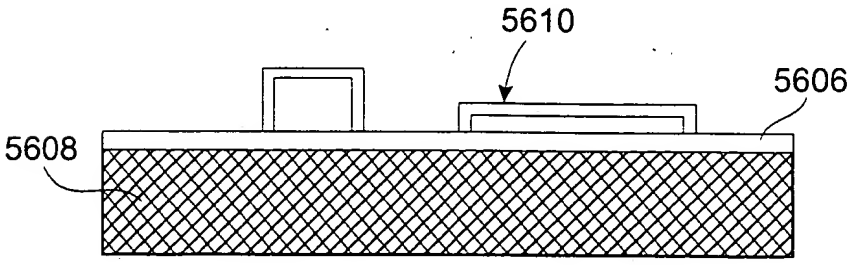


FIG. 45c

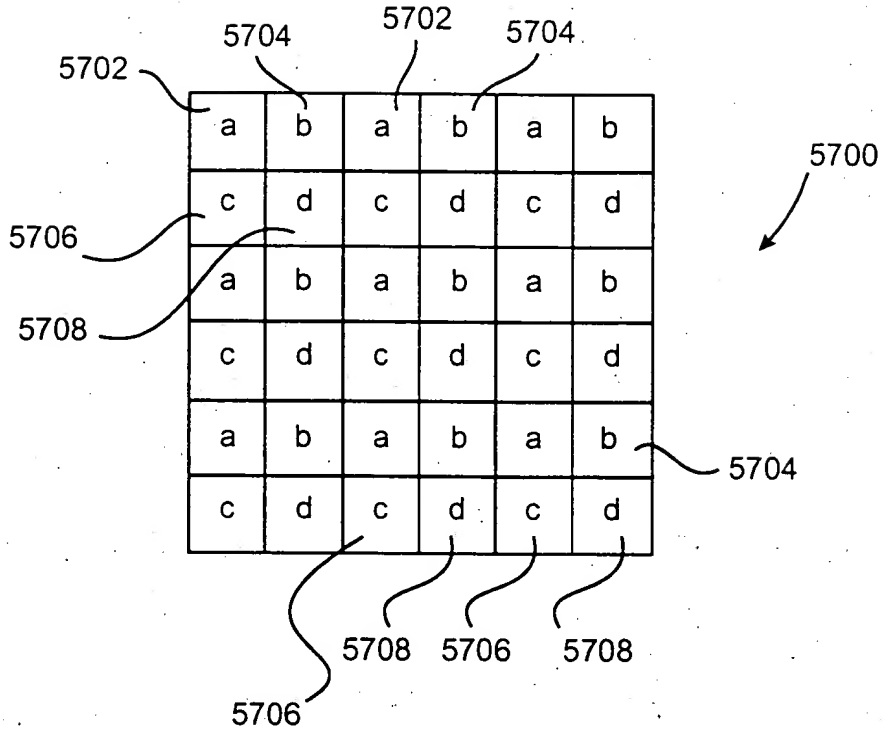


FIG. 46a

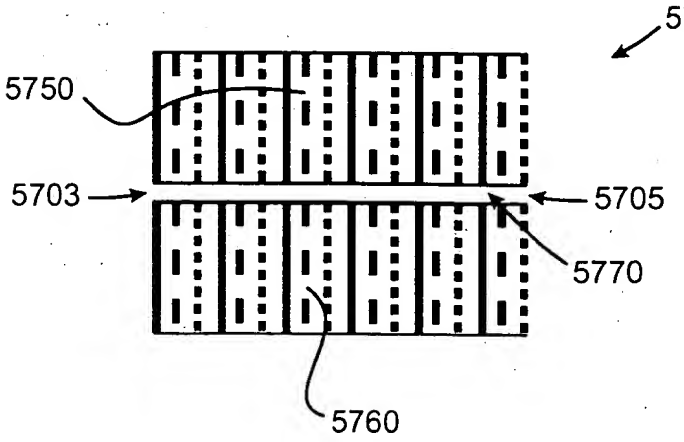


FIG. 46b

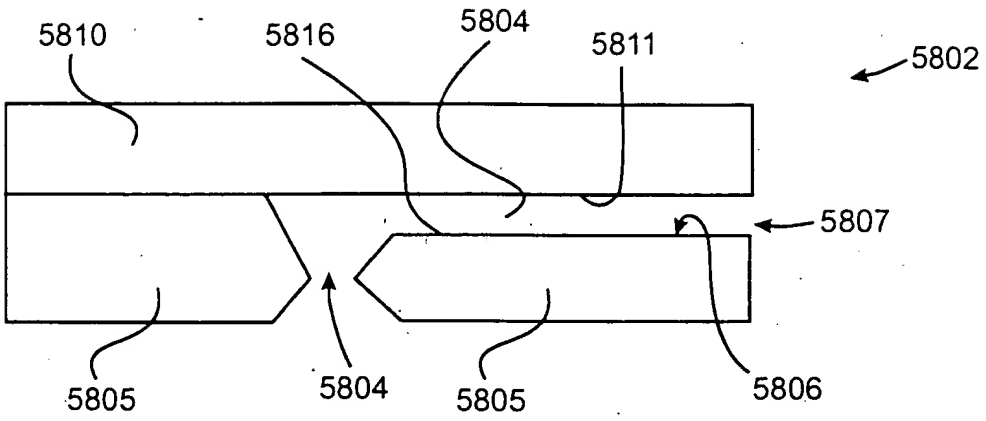


FIG. 47a

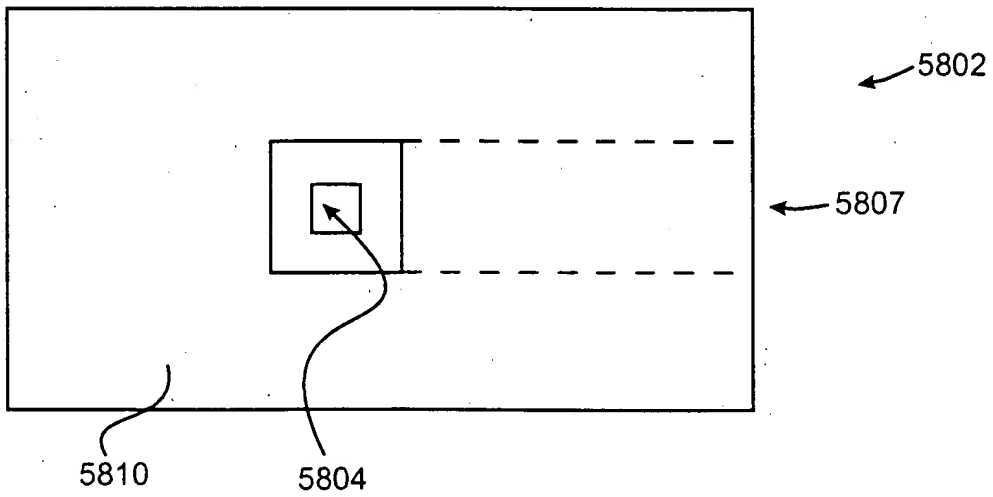


FIG. 47b

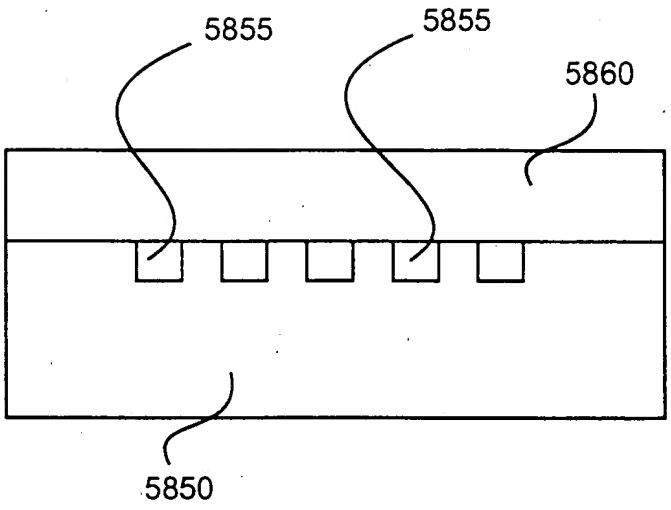


FIG. 47c

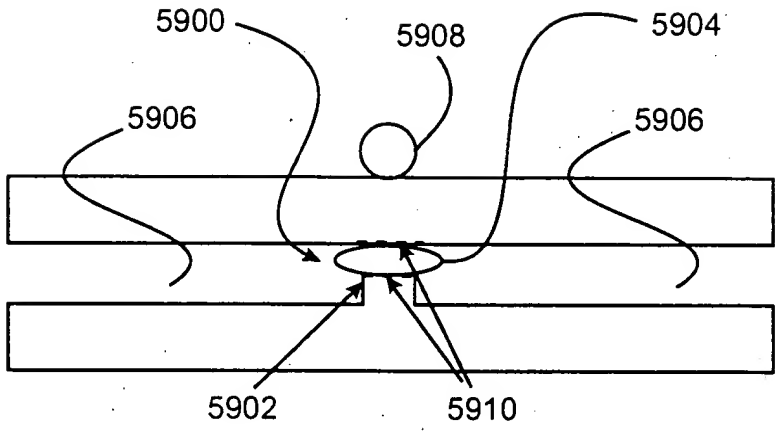


FIG. 48

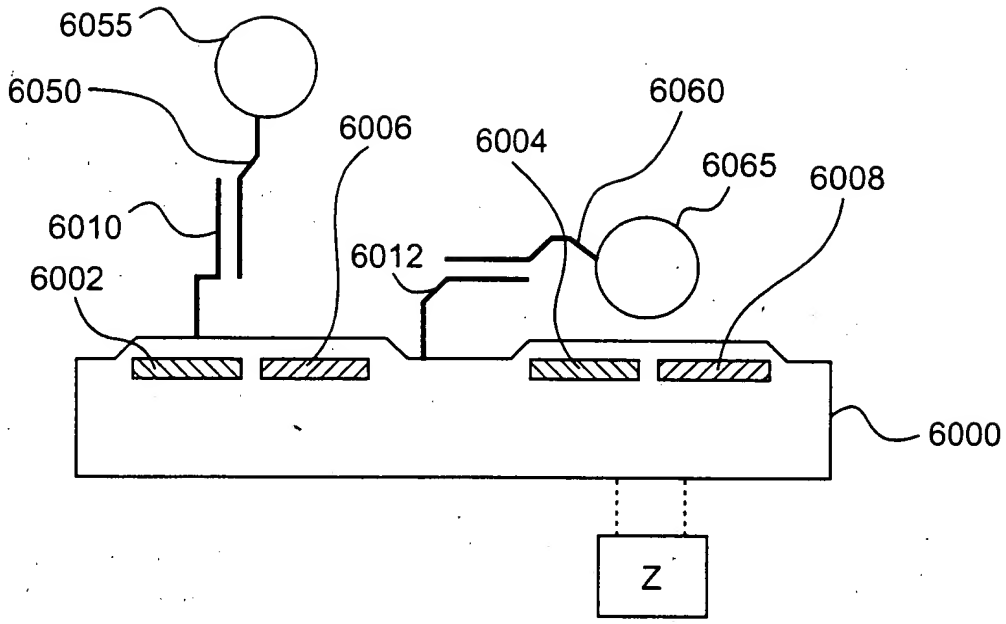
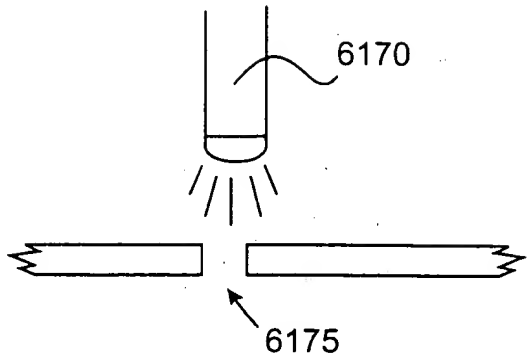


FIG. 49



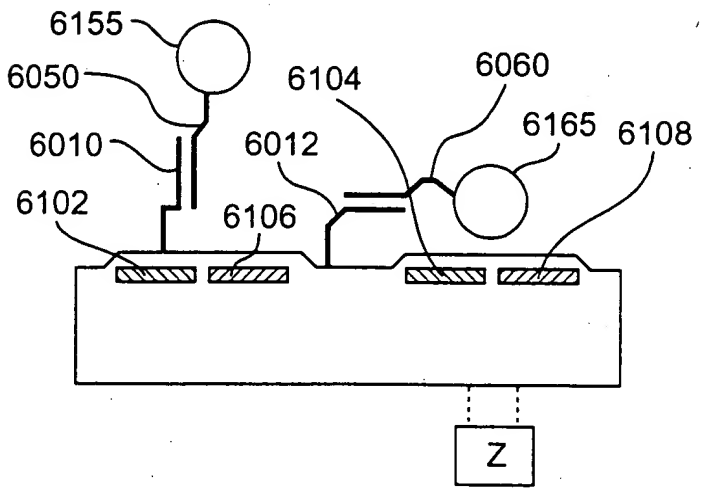


FIG. 50

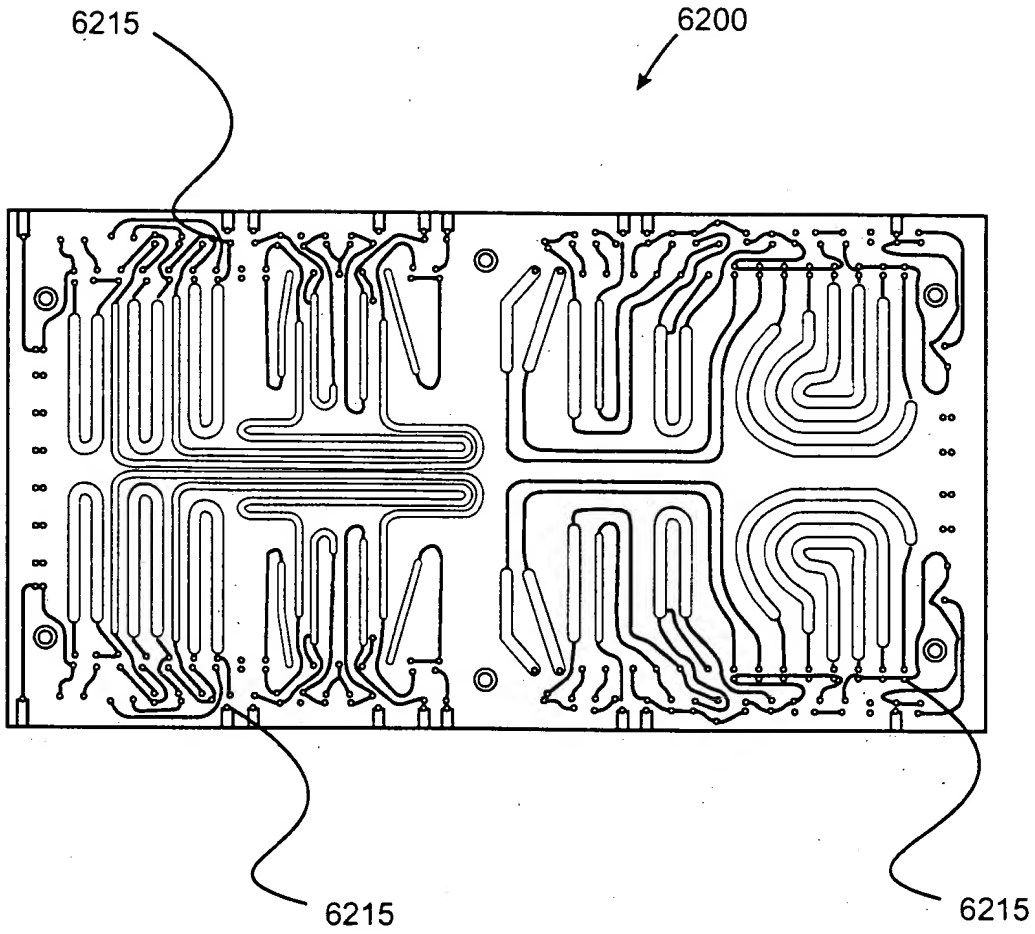


FIG. 51

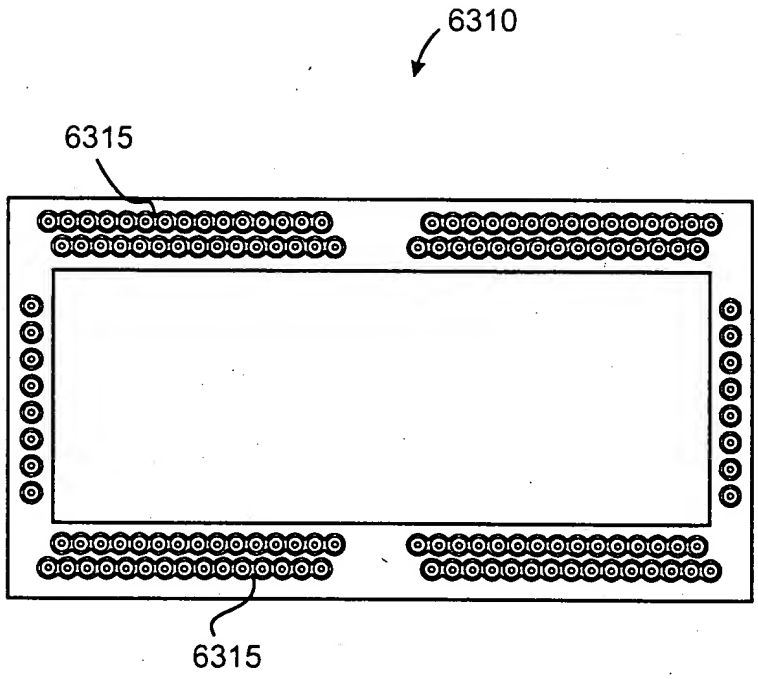


FIG. 52

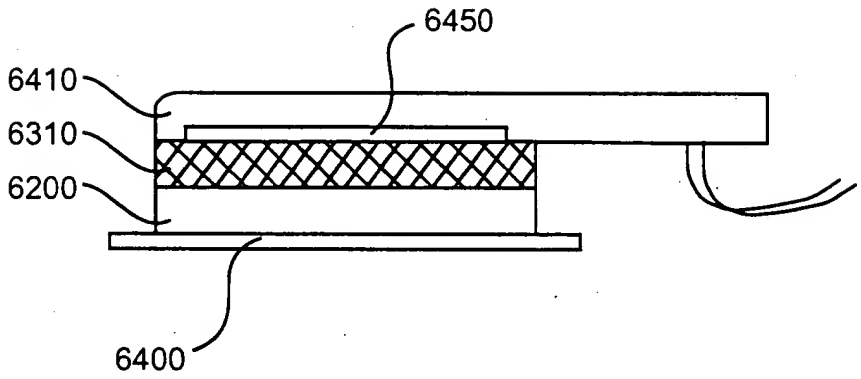


FIG. 53

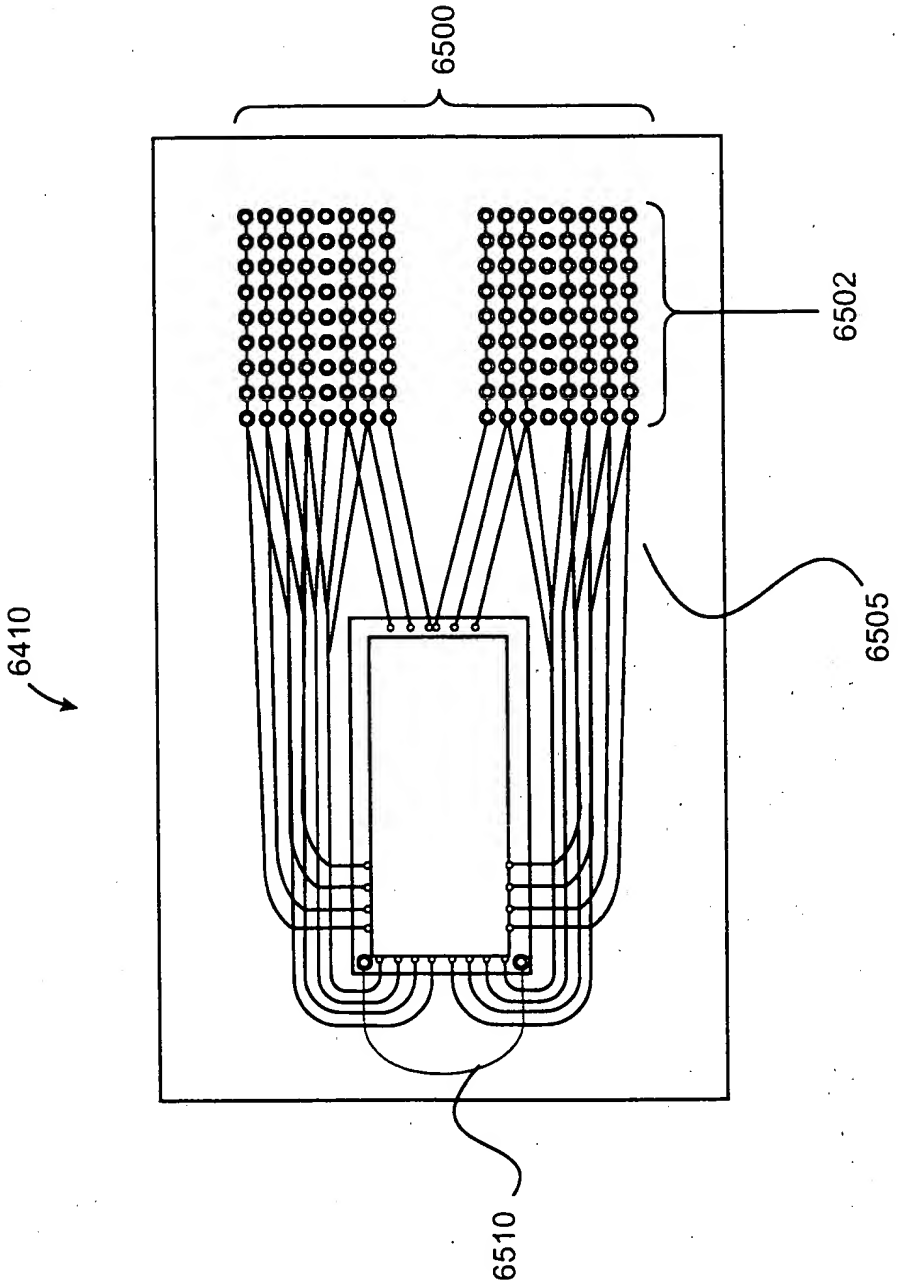


FIG. 54

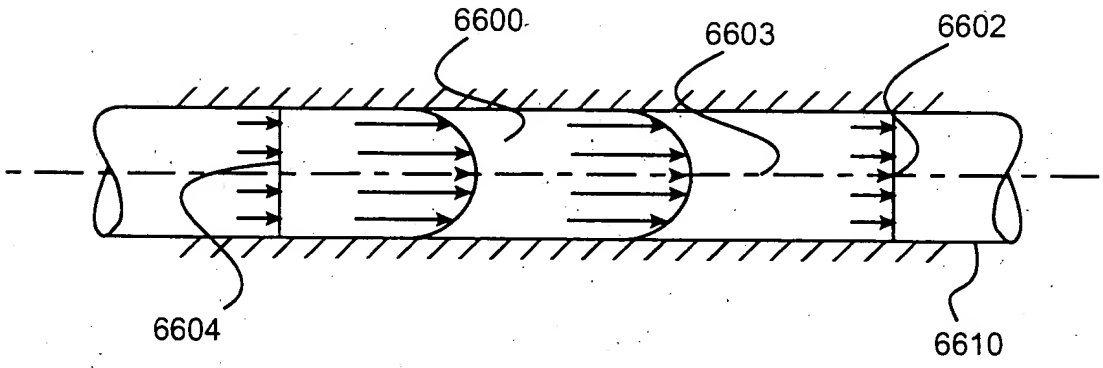


FIG. 55a

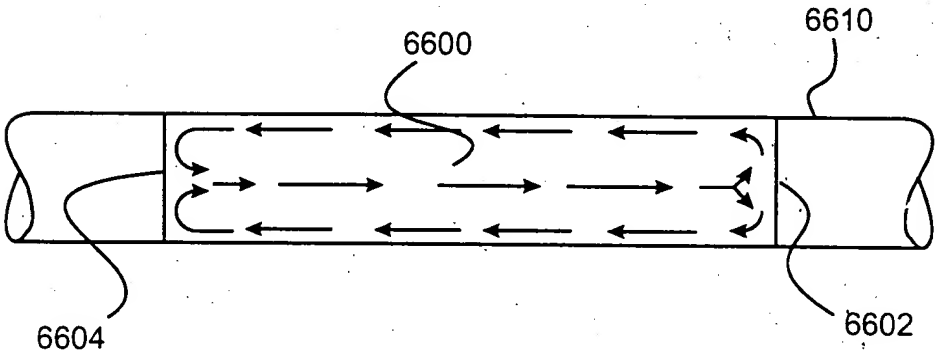


FIG. 55b